



INDIAN MINES ACT, 1923

ANNUAL REPORT

OF THE

CHIEF INSPECTOR OF MINES IN INDIA

FOR THE YEAR ENDING

31st DECEMBER 1933

DELHI: MANAGER OF PUBLICATIONS

1934

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INDIAN MINES ACT, 1923

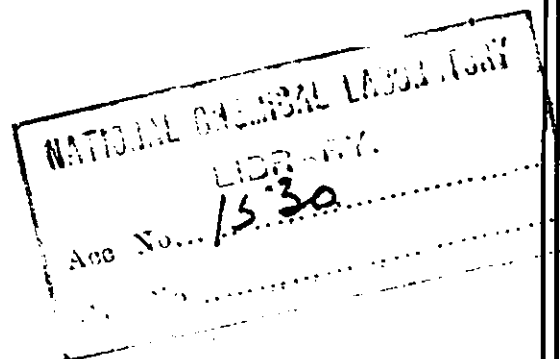
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FROM

D. PENMAN, Esq., D.Sc., F.R.S.E.,
CHIEF INSPECTOR OF MINES IN INDIA,

TO

THE SECRETARY TO THE GOVERNMENT OF INDIA,
DEPARTMENT OF INDUSTRIES AND LABOUR,
SIMLA.

Dated Dhanbad, the 24th May 1934.

SIR,

I have the honour to submit the report upon the inspection of mines in British India for the year ending 31st December 1933.

INTRODUCTION.

The Indian Mines Act, 1923, applies to British India only and not to the Indian States. For the complete figures of production of all minerals raised from excavations of all depths in British India and the Indian States reference may be made to the statements of the "Mineral Production of India" published annually in the Records of the Geological Survey of India, and to the "Quinquennial Review of the Mineral Production of India" published every five years by the same Department. Detailed information of the mineral industries in Mysore—where the Kolar goldfield is situated—and Hyderabad (Nizam's Dominions) is given in the annual reports of the Chief Inspector of Mines in those States.

Section I.—Persons employed.

During the year 1933 the daily average number of persons working in and about the mines regulated by the Indian Mines Act was 206,507, as compared with 204,658 in the previous year. The increase was 1,849 persons, or 0·90 per cent. Of these persons 112,355 worked underground, 41,587 in open workings and 52,565 on the surface. The numbers of men and women, res-

pectively, who worked underground, in open workings and on the surface were as followed :—

	Men.		Women.	
	1933.	1932.	1933.	1932.
Underground	99,556	96,196	12,799	14,711
In open workings	30,866	30,256	10,721	10,761
Surface	<u>40,616</u>	<u>39,899</u>	<u>11,949</u>	<u>12,835</u>
Total	<u>171,038</u>	<u>166,351</u>	<u>35,469</u>	<u>38,307</u>

The number of women employed underground was 12,799, or 11·39 per cent. of the total number of men and women employed underground. The percentage of women employed underground in coal mines was 13·14, as compared with 14·84 per cent. in 1932, 16·81 per cent. in 1931, 18·39 per cent. in 1930 and 23 per cent. in 1929. The provincial distribution of the women who worked underground was as follows :—

Province.	Number of women employed underground.		
	In coal mines.	In salt mines.	Total.
Bengal	4,551	..	4,551
Bihar and Orissa	7,292	..	7,292
Central Provinces	846	..	846
Punjab . . . . .	..	110	110
Total	<u>12,689</u>	<u>110</u>	<u>12,799 in 1933</u>

as compared with 14,711 in 1932.

The number of persons employed in coal mines was 144,707, which is 3,782 less than the number employed in 1932. Of these persons, 45,509 were males employed in cutting coal, 17,845 were males employed as loaders of coal and 23,835 were women.

Under Notification No. M.-1265, dated the 25th April 1933, issued by the Government of India, in the Department of Industries and Labour, returns are now required of the number of persons actually at work, and also of persons who should ordinarily have been at work but were absent, on a selected day in February of each year. The returns relate only to coal mines. The day to which the returns apply must be the day of a week selected by the Chief Inspector in which there is the largest turn-out of work-persons. For February 1934 the week selected by me and agreed to by those concerned was as follows :—

Bengal and Bihar and Orissa 18th to 24th.

Assam, Baluchistan, the Central Provinces and the Punjab 11th to 17th.

Although these returns are for a day in 1934, I am including them in this report and propose also to do so in future as they would be more than a year out of date if held over till the submission of my report for the year in which they are made.

The returns for 1934 show that on the day selected 185,760 persons were either at work or were prevented from attending work. This figure is 41,053 more than the average number of persons employed in coal mines during 1933. Some of the more important district comparisons are as follows :—

	Average daily attendance.	Attendance on selected day (absentees included).	Excess over average daily attendance.	Percentage excess
Jharia Coalfield	60,181	75,982	15,801	26.3
Raniganj Coalfield	43,897	65,750	16,853	34.5
Central Provinces Coalfield	11,161	14,240	3,079	27.6
Salt Range Coalfield (Punjab)	1,516	2,227	711	46.9

Some of the percentages of absentees are as follows :—All mines from which returns were received 7.6; Jharia 3.6; Raniganj 9.9; and Central Provinces 8.2. It is probable that the reason for the low percentage of absentees in the Jharia Coalfield is that there a larger proportion of the labour force is resident at or near the mines than in the other areas. A detailed statement compiled from the returns is given in Appendix I. Table No. I-A. It should be pointed out that February is probably the busiest month of the year, *i.e.*, the month in which labour is most plentiful and that the figures for average daily attendance do not include absentees.

Figures showing the average output of coal per person employed are given below :—

	Tons of coal per person employed.			
	Underground and in open workings.		Above and below ground.	
	1933.	1931-32.	1933.	1931-32.
British India	174	180	125	128
Bengal and Bihar	178	183	128	130
Assam	143	117	97	85
Baluchistan	50	79	48	70
Central Provinces	153	160	111	115
Punjab	100	89	62	56

There was a further fall in the average output of coal per person employed. The average is the lowest since 1926. The decline may be ascribed mainly to the lessened proportion of coal mined by coal cutting machines. In comparing the figures with similar figures in other countries it should be remembered that both men and women are employed in Indian coal mines. In 1932 the output of coal per person employed above and below ground in the United Kingdom was 255 tons. In the same year, *i.e.*, 1932, comparative figures in certain other countries were Japan 288 tons; France 175 tons; Germany 314 tons; and the United States of America 669 tons.

The number of persons employed in metalliferous (including mica, stone, clay and salt) mines was 61,800 which is 5,631 more than the number em-

ployed in 1932. 50,166 were men and 11,634 were women. Of the women 110 worked underground in salt mines.

Bengal and Bihar and Orissa.—In Bengal and Bihar and Orissa there was an ample supply of mining labour. There was a further reduction in the rates paid to workmen. The weekly earnings of many miners was also adversely affected by the fact that many collieries only worked three and four days per week during a considerable part of the year. A number of collieries had again to close down owing to the lack of demand for the coal produced by them. The low price of foodstuffs to a considerable extent alleviated the condition of the work-people. In spite of the depressed condition of trade the relations between employers of labour and workmen were amicable. At one colliery in the Raniganj coalfield there was a brief strike of two days' duration due to a cut of one anna per loaded tub of coal paid to miners. The general health of persons living within the Raniganj and Jharia Mining Settlements was on the whole satisfactory. There were fewer cases of cholera and fewer deaths from that disease in both of the Mining Settlements than in the previous year. There was an increase in the number of cases of small-pox in the Jharia coalfield and a small decrease in the Raniganj coalfield. In the area administered by the Asansol Mines Board of health, concentrated efforts at vaccination and re-vaccination, prompt isolation and segregation helped greatly to check the spread of the disease. Adequate measures were also taken by the Jharia Mines Board of Health. An account of the activities of the Mines Board of Health in the Raniganj and Jharia coalfields is given in Section V of this report from which it will be seen that the activities of both the Boards have been maintained and extended.

The iron ore mines in the Singhbhum district were again greatly affected by the depressed state of the market for pig iron with the result that the number of workmen employed was a very small percentage of the normal.

At the copper mines in the Singhbhum district the supply of labour was again in excess of the demand. There were no strikes. There was no outbreak of epidemic disease.

At the mica mines in Chota Nagpur the supply of labour was plentiful. There were no strikes during the year. Cholera and small-pox were prevalent to some extent about the middle of the year. Wages were lower than in 1932.

At the slate mines in the Monghyr district there was a strike early in the year of nearly two months' duration. The strike was due to a dispute as to rates of payment.

Assam.—In Assam there was a plentiful supply of labour and wages were fairly steady. There were no strikes or epidemics.

Central Provinces.—In the Pench Valley Coalfield there was some shortage of labour in the last quarter of the year. This was partially met by recruitment from outside districts. There was little alteration in the rate of wages. There was no strike; the relations between labourers and employers were good. Health conditions during the year showed some improvement over 1932. There were distinctly fewer cases of malaria than in the previous year. Small-pox was also less common.

The year was again a bad one for manganese but towards the end of the year there were signs of improvement.

Punjab.—There was no change in the labour conditions in the Punjab. The hereditary mining labour at Khewra was in excess of that actually required. The system of employing men for a limited period of each month and thus spreading employment reasonably equally throughout the community was continued at Khewra. The monsoon of 1933 was of exceptional intensity, the rainfall during July and August surpassing that of all previous records; considerable damage was done to buildings on the surface, but the mine did not suffer. The effect of the rainfall, however, was to cause a serious outbreak of malaria, although mortality was not high. Conditions regarding education were much the same as last year.

Madras.—At the mica mines in the Nellore district labour was plentiful and there were no strikes or epidemics. There was no improvement in the mica industry and many mines had to be closed.

Burma.—At the mines in the Northern Shan States worked by the Burma Corporation, Limited, there was at no period of the year any shortage of labour. The average daily number of employees in all departments of the Company's activities was 10,036. There were no strikes. The anti-malarial measures at Namtu and Bawdwin were continued throughout the year with beneficial results. There were no epidemics.

The supply of labour in the Tavoy and Mergui districts was ample. Health conditions were generally good and the relations between workmen and employers were amicable.

The statistics furnished in this report show that the number of women employed underground is well below the permissible percentage on 1st July 1933. In many coal mines very few women are now employed.

In the table on page 6 figures are given of the average daily wages paid in December in each important mining field in India. If the figures are compared with those in a similar table in last year's Annual Report it will be seen that there has been a further general reduction in wages. The wages of coal miners in Jharia and Raniganj coalfields decreased by over 10 per cent. The earnings of coal miners in the Giridih, Assam, Punjab and Pench Valley coalfields fell slightly, while there was a slight increase in the wages of coal miners in Baluchistan. The earnings of mica miners were over 17 per cent. lower, while there were slight increases in Burma tin and Punjab salt mines. The average daily earnings of coal miners in the Jharia Coalfield in 1933 were about 60 per cent. of what they were in 1930.

RECOMMENDATIONS OF ROYAL COMMISSION ON LABOUR.

I have mentioned elsewhere in this report the appointment of provincial and district public health officers as Inspectors of mines in matters relating to health and sanitation. Much good is likely to accrue from these appointments.

A yearly return of the total number of persons actually employed in coal mines is now required by regulation 3 (4) of the Indian Coal Mines Regulations, 1926. The figures of the first return are given in this report.

Average daily earnings in December 1935.

Mineral field.	Underground.						Open workings.						Surface.			
	Overmen and Sirdars.	Miners	Loaders.	Skilled Labour.	Unskilled Labour.	Females	Overmen and Sirdars.	Miners.	Loaders.	Skilled Labour.	Unskilled Labour.	Females.	Clerical and Supervising staff.	Skilled Labour.	Unskilled Labour.	Females.
	Foremen and Mates.						Foremen and Mates.									
R a. p.	R a. p.	R a. p.	R a. p.	R a. p.	R a. p.	R a. p.	R a. p.	R a. p.	R a. p.	R a. p.	R a. p.	R a. p.	R a. p.	R a. p.	R a. p.	R a. p.
Jharia Coalfield (Bihar and Orissa)	1 3 6	0 8 6	0 7 3	1 10 6	0 7 3	0 5 9	0 13 9	0 7 6	0 5 9	1 8 0	0 6 3	0 6 9	1 3 0	0 10 0	0 6 3	0 4 6
Baniganj Coalfield (Bengal)	0 15 6	0 8 3	0 7 0	0 9 9	0 6 9	0 5 0	0 9 6	0 5 0	0 4 0	0 6 3	0 3 0	0 3 0	1 0 3	0 8 0	0 6 6	0 4 0
Giridih Coalfield (Bihar and Orissa)	1 7 0	0 9 6	0 8 3	1 10 6	0 8 0	0 4 0	0 14 9	0 8 0	0 5 0	0 8 0	0 6 0	0 4 0	1 6 0	0 12 0	0 8 0	0 5 3
Assam Coalfields	1 4 6	1 1 3	1 0 6	1 0 9	0 13 9	...	...	...	...	...	...	...	2 3 6	1 0 0	0 11 3	0 7 9
Punjab Coalfields	0 13 9	0 12 3	0 12 0	0 11 6	0 7 0	...	...	...	...	...	...	...	0 13 3	0 12 0	0 8 0	0 4 0
Baluchistan Coalfields	1 7 0	0 14 9	0 11 3	0 12 9	0 6 0	...	...	...	...	...	...	...	...	...	...	...
Pench Valley Coalfield (Central Provinces), Bihar and Orissa Mica	1 5 3	0 13 0	0 6 0	0 10 0	0 7 3	0 6 0	...	...	...	1 6 0	0 5 0	0 3 3	1 1 0	0 10 0	0 7 0	0 4 9
Bihar and Orissa Mica	0 7 0	0 4 9	...	0 4 6	0 3 0	...	0 6 0	0 4 3	...	0 3 9	0 3 3	0 2 0	0 12 6	0 4 9	0 3 9	0 3 0
Madras Mica	0 10 0	0 4 9	...	0 3 0	0 3 6	...	0 5 0	0 4 0	...	0 4 0	0 3 0	0 3 6	0 10 6	0 4 3	0 3 6	0 2 3
Central Provinces Manganese	1 6 3	...	...	...	...	...	0 11 6	0 3 9	...	0 8 0	0 4 0	0 2 3	3 5 0	0 10 0	0 5 0	0 2 0
Central Provinces Limestone	...	...	...	...	...	...	0 12 0	0 5 6	...	0 13 6	0 3 9	1 2 0	1 6 0	0 12 9	0 4 6	0 2 3
Bihar and Orissa Iron	...	...	...	...	...	...	0 15 3	0 3 3	...	0 8 9	0 4 0	0 2 6	1 7 0	0 16 0	0 4 0	0 3 0
Burma Lead	15 8 0	1 15 9	...	1 12 0	1 9 6	...	3 14 3	...	...	...	1 2 0	...	3 2 0	3 11 6	1 0 9	...
Burma Tin	3 13 0	1 3 0	...	1 0 0	0 14 0	...	2 3 9	1 2 6	...	0 15 9	0 12 6	0 8 3	2 3 0	1 2 6	0 11 6	...
Punjab Salt	4 5 0	3 3 3	...	1 1 3	0 14 6	0 8 0	0 6 9	1 0 9	...	...	...	0 8 0	0 9 3	1 1 6	0 8 0	...
Bihar and Orissa China Clay	...	...	...	...	...	...	0 6 3	0 4 3	...	0 5 6	0 3 6	1 2 6	1 3 9	0 7 9	0 3 9	0 2 9
Punjab Slate	...	...	...	...	...	...	0 8 0	0 6 3	...	0 7 6	0 4 0	...	1 1 3	...	0 6 3	...
United Provinces Stone	...	...	...	...	...	...	0 6 9	0 10 3	...	0 5 3	0 4 6	0 2 9	0 13 9	0 3 3	0 8 3	0 2 3

There is a growing tendency to standardise the size of tubs at many of the more important coal mines as conditions permit.

Underground latrines have been provided at Khewra salt mines.

Inspectors of Mines are giving increasing attention to the conditions in coal mines in respect of cleanliness and sanitation.

In August I was asked by the Government of Burma to examine and report upon the question of providing latrines for certain quarries in Burma and to make specific recommendations with respect to those quarries. I deputed Mr. J. H. Lang, Inspector of Mines, who was on tour in Burma from October 1933 to March 1934 to go into the matter. Mr. Lang's report has been forwarded to the Local Government.

Towards the end of the year the Governments of Bengal and Bihar and Orissa issued a printed pamphlet summarising the recommendations made by the Royal Commission on Labour regarding the action to be taken by employing interests. The object of the pamphlet is to help to keep the recommendations of the Royal Commission before employers so that such recommendations may be taken up when opportunity occurs.

Section II.—Output Of Minerals.

COAL.

Output.—The statement given below shows the output of coal in the various provinces in British India during the years 1932 and 1933 :—

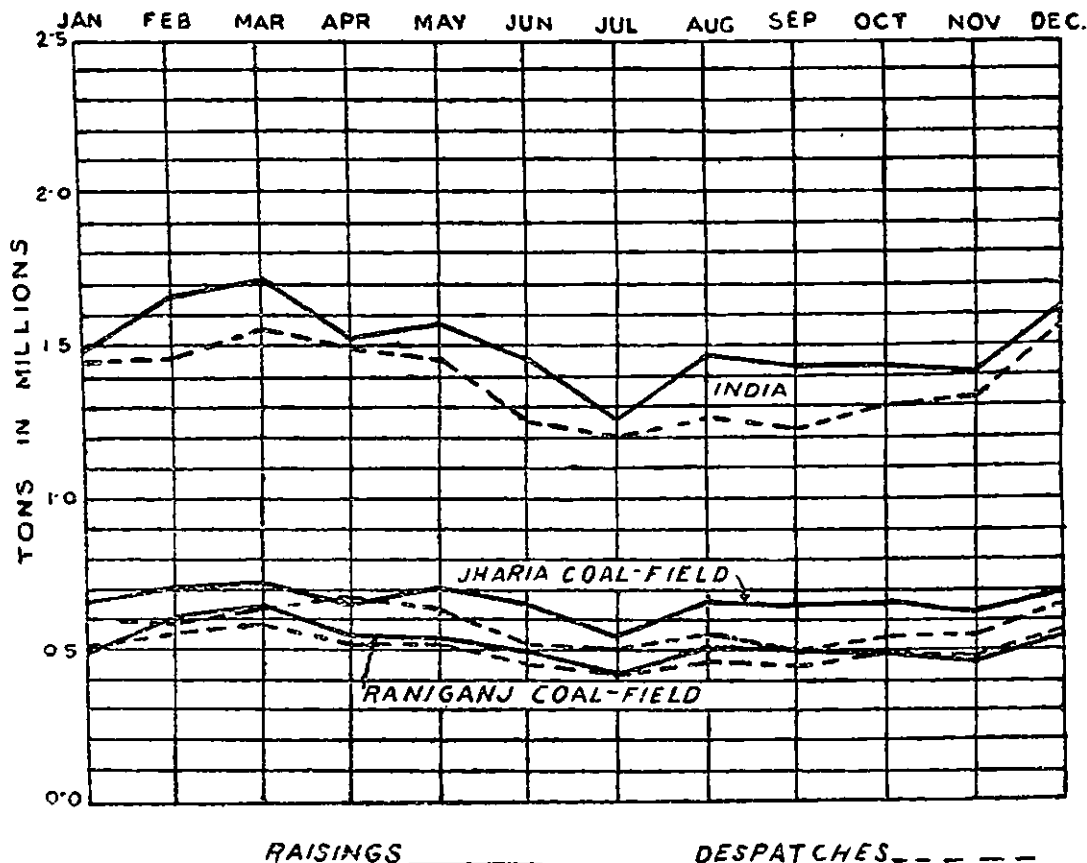
	Output in tons.	
	1933.	1932.
Assam	192,036	208,802
Baluchistan	9,141	13,957
Bengal	5,691,189	5,782,603
Bihar and Orissa	10,939,693	11,592,130
Central Provinces	1,234,523	1,049,238
Punjab	94,099	72,857
TOTAL	18,160,681	18,719,587

The total output in 1933 was 18,160,681 tons of a declared value of Rs. 5,52,04,208. The decrease in the output was 558,906 tons, *i.e.*, 3.08 per cent. and the decrease in value Rs. 70,37,567, *i.e.*, over 11 per cent. The opening stocks in 1933 were 1,646,248 tons and the closing stocks 1,143,891. In the chart which appears below the raisings and despatches of coal are shown month by month.

It will be seen that the greatest output was obtained in March and the lowest in July. Despatches were nearly equal to the raisings towards the

end of the year and in the Raniganj Coalfield actually exceeded the raisings in November and December.

RAISINGS AND DESPATCHES OF COAL MONTH BY MONTH IN 1933.



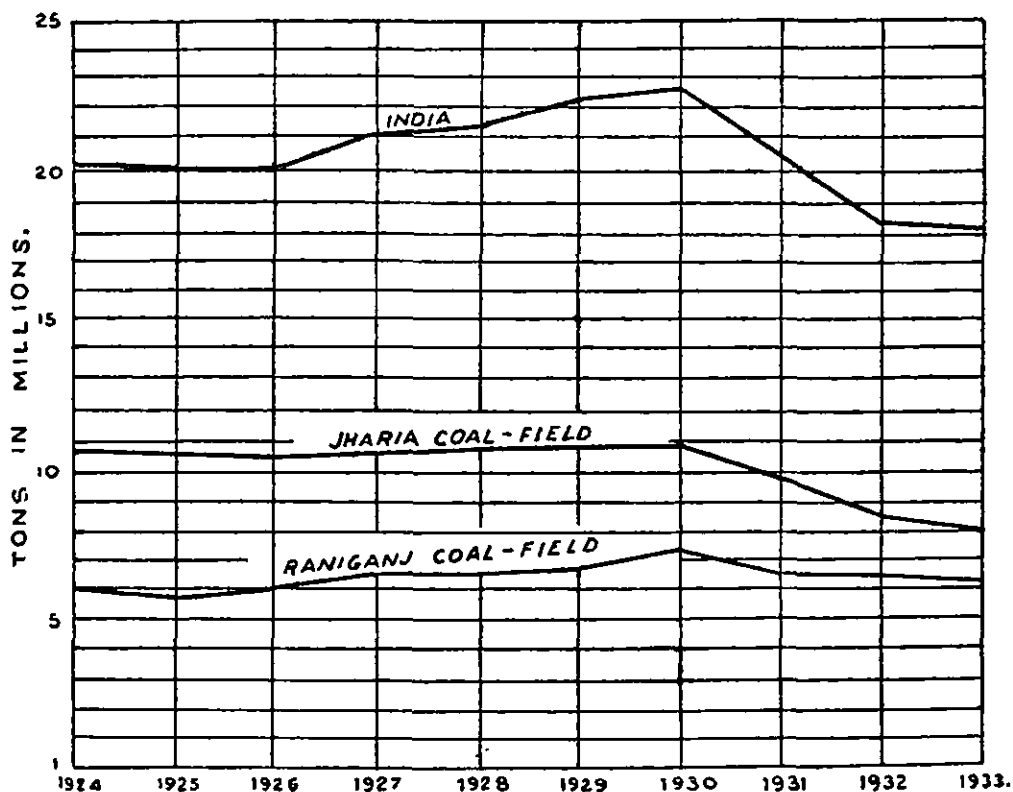
The output in Bihar and Orissa decreased by 652,437 tons, and in Bengal there was a decrease of 91,414 tons. In the Central Provinces the output increased from 1,049,238 tons to 1,234,523 tons. There was an increase of 21,242 tons in the Punjab and a decrease of 4,816 tons in Baluchistan. There was also a decrease of 16,766 tons in Assam.

The figures of output for the principal coalfields are as follows :—

Coalfield.	1933.	1932.	Percentage of increase+ or decrease. —
Jharia . . .	8,014,949	8,551,283	—6.27
Raniganj . . .	6,265,703	6,419,007	—2.39
Bokaro . . .	1,304,864	1,348,973	—3.27
Giridih . . .	635,924	583,243	+9.03
Karanpura . . .	343,876	409,566	—16.04
Fench Valley . . .	978,179	831,817	+17.60
Assam . . .	192,036	208,802	—8.03

The output of the Jharia Coalfield fell by more than 6 per cent. and the Karanpura Coalfield by more than 16 per cent. while the output of the Assam Coalfield fell by about 8 per cent. There were increases of output in the Pench Valley Coalfield of the Central Provinces and in the Giridih Coalfield. The decrease in the Jharia Coalfield was nearly equal to the decrease for the whole of British India. The accompanying chart shows the variation of the output of coal during the period 1924—33.

CHART SHOWING OUTPUT OF COAL
DURING THE PERIOD 1924-33.



Despatches.—The despatches of coal were 16,355,135 tons, and 1,038,617 tons or 5.72 per cent. of the raisings were consumed on the collieries. The quantity of coal used for coking at the collieries was 1,269,286 tons, and 824,165 tons of soft coke and 69,271 tons of hard coke were made. There was a substantial increase, *i.e.*, 8.41 per cent. in the quantity of soft coke manufactured at the collieries for domestic consumption; the increase may

perhaps be attributed largely to the valuable propaganda work done by the Indian Soft Coke Cess Committee. The quantity of hard coke made at the collieries is small. Most of the hard coke is made at coke-making plants which do not come under the Mines Act. and 1,368,899 tons of coal were despatched to coke-making plants of this kind in 1933. This quantity is 74,004 tons less than in 1932. Analyses of the figures relating to the output of coal and the manufacture of coke will be found in Appendix I, Table No. 3.

It will be noticed that though the output of coal in 1933 was lower than the output in 1932 by over half-a-million tons, the despatches of coal for the year exceeded those for 1932 by over 200,000 tons. These figures indicate that a considerable quantity of coal was despatched from stock during the year. In consequence the stocks of coal at the collieries at the end of the year were considerably less than at the beginning. This is a feature of the conditions of the coal trade which may have a healthy and stimulating effect in the near future.

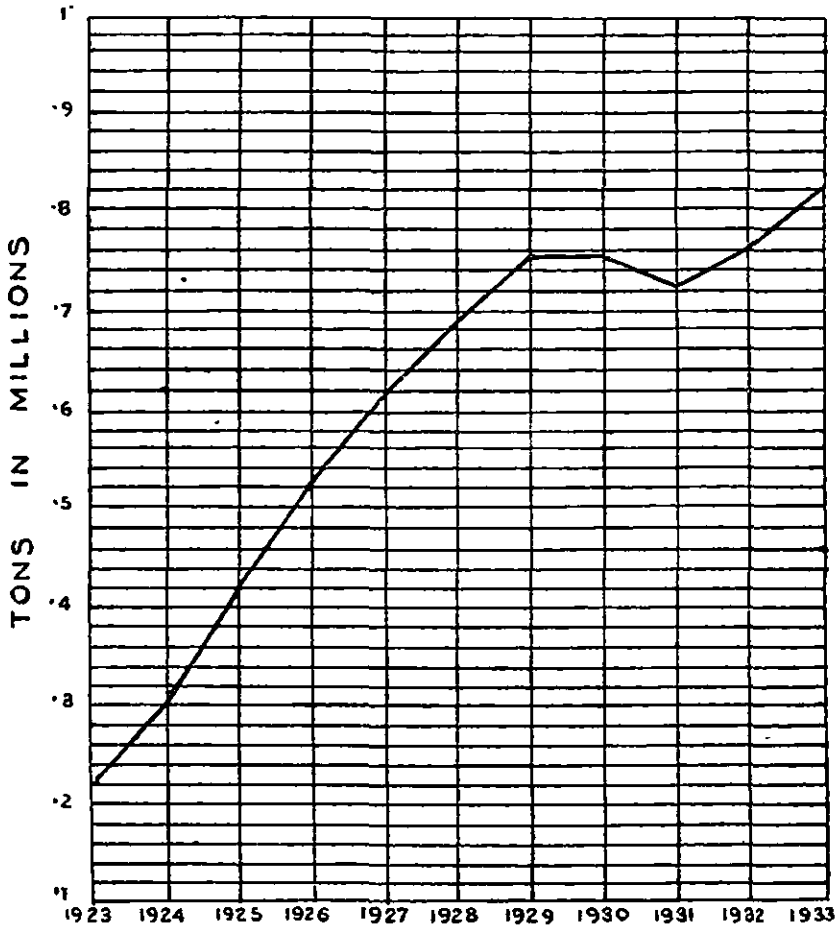
The following figures giving the average value per ton of coal put into wagons in various districts may be of interest:—Assam, Rs. 9 as. 9·7; Baluchistan, Rs. 7 as. 0·2; Bengal, Rs. 2 as. 13·7; Bihar and Orissa (Jharia Coalfield), Rs. 2 as. 11·2; Central Provinces, Rs. 3 as. 12·6; and the Punjab, Rs. 4 as. 11·8. In every case, except in the Central Provinces, the values are from annas four to Rs. 1·4 lower than in 1932. In the Central Provinces the value remained practically the same.

Trade Conditions.—The prices of practically all grades of coal continued to fall during the year, the sole exception being the coals of the Central Provinces. The average price of coal was lowest in the Jharia Coalfield. In consequence the wages paid to labour were extremely low and there was very little expenditure on development and maintenance at the mines. There was a decrease of over 300,000 tons of coal exported due, in part, to the fact that less coal was taken by sea by railways in Southern India and Burma. Conditions as a whole so far as the rates for the various grades of coal are concerned were even worse than in 1932. During the year proposals were made for a restriction of output so as to stimulate prices. It remains to be seen whether the scheme will mature.

Coal Grading Board and Soft Coke Cess Committee.—The work of the Indian Coal Grading Board was continued during the year and maintained the same high standard. The quality of coal exported was generally excellent. During the year 18,96,155 tons of coal were exported under the supervision of the Board. The Indian Soft Coke Cess Committee continued to carry on extensive house to house propaganda in Northern and Western India. In order to investigate the possibility of improving the method of manufacture of soft coke the Committee decided to carry out research work and the investigation was entrusted to the Principal, Indian School of Mines. The work is being carried out under the direction of Professor Forrester of the School. During the year 823,073 tons of soft coke were despatched from the coalfields, as compared with 756,036 tons during 1932. Out of the output for 1933, 783,284 tons were despatched from the Jharia coalfield, a greater quantity than the whole of the output for 1932. The seams in the Jharia Coalfield provide the chief source of this important domestic fuel. It is gratifying to note that the demand for soft coke continues to increase. The

accompanying graph gives an indication of the development of the soft coke industry during the last ten years.

DESPATCHES OF SOFT COKE FROM 1923-33.



Use of Electricity both at Coal Mines and at Other Mines.—The number of coal mines using electrical energy was 120, as compared with 124 in the previous year, and the aggregate horse power employed at coal mines decreased from 80,721 to 74,430. During the year electrical plant was installed and brought into operation in four additional coal mines; electrical plant was reintroduced at one mine but was withdrawn from another mine and two mines using electricity were amalgamated and seven mines using electricity were closed.

Electricity was used at 18 metalliferous mines, as against 15 mines in 1932, and 18 in 1931, and the aggregate horse power employed was 9,169 showing an increase from last year of 9.5 per cent.

Statistics of the electrical plant in use at mines in the various provinces of British India and in certain mine fields are contained in Appendix I, Tables Nos. 7, 8 and 9.

Explosives.—During the year 1,977 575 lb. of gunpowder, 64,112 lb. of high explosives and 84,802 lb. of “permitted” explosives were used at coal mines. These figures compare with 2,290,142 lb. of gunpowder, 71,526 lb. of high explosives and 119,695 lb. of “permitted” explosives used in 1932. In addition 74 355 lb. of liquid oxygen explosives were used. A statement of the kind and quantity of explosives used during the year in the different kinds of mines under the Act is given in Appendix I, Table No. 12.

Coal Cutting Machines.—The number of coal cutting machines in use decreased from 157 to 105, *i.e.*, a decrease of 52 machines. All the machines in use were worked by electricity. 32 machines were at work in the Jharia Coalfield, 70 in the Raniganj Coalfield and 3 in the Central Provinces. The decrease in the number of machines in use is accounted for mainly by the large number of machines withdrawn in the Jharia and Raniganj coalfields. The chief reason for the withdrawal of the machines is the low price of coal and the consequent reduction of output. A contributory cause is a decrease in the amount of development work being done. Coal cutting machines were in use in 39 mines, as against 52 mines in 1932 and the total area under-cut was 6,980,646 square feet, as compared with 10 017,873, square feet under-cut in the previous year.

Mechanical Ventilators.—In Appendix I, Table No. 10, particulars are given of the number of mechanical ventilators in use in coal mines under the Act. In 1933, 88 mechanical ventilators were in use, the number being 90 in the previous year.

Safety Lamps.—In Appendix I, Table No. 11, particulars are given of the number of safety lamps in use in coal mines under the Act. 21,094 safety lamps were in use in 1933 as compared with 23,593 in 1932.

IRON ORE.

The production of iron ore was 653,239 tons, valued at Rs. 14,78,202, as compared with 673,434 tons, valued at Rs. 15,64,504 in 1932.

MANGANESE ORE.

There was a decrease of more than 39·58 per cent. in the output of manganese ore, the figures of production being 53,240, valued at Rs. 2,31 432, as compared with 88,119 tons, valued at Rs. 5,35 347 in 1932. The average reported value per ton of manganese ore produced fell from Rs. 6·07 in 1932 to Rs. 4·35 in 1933. The corresponding value in 1931 was Rs. 7·36. The position of the manganese industry showed little improvement during the year. There were, however, considerable despatches of manganese from stock. The Central Provinces Manganese Ore Company, Limited, for example despatched a total of 178,384 tons as follows:—95,606 tons to Calcutta, 23,078 tons to Bombay, 44,707 tons to Vizagapatam and 14,993 tons to Tatanagar. Toward the end of the year there seemed to be an appreciable increase in the demand for manganese ore from Europe, and it is anticipated that some of the mines will be re-opened in 1934.

LEAD-SILVER ORE.

The output of lead-silver ore from the Bawdwin mine in the Northern Shan States, Burma, was 454,791 tons, as compared with 372,586 tons in 1932. The increase was 22·06 per cent. 70,560 tons of refined lead; 1,485 tons of antimonial lead; 6 054·047 ounces of refined silver; 12,550 tons of copper matte; and 3,350 tons of nickel speiss were produced. The experimental zinc plant at the Namtu mill produced 61,432 tons of zinc concentrates.

The average values of metals extracted were as follows:—Refined lead, Rs. 160-7-0 per ton; refined antimonial lead, Rs. 161-3-0 per ton; and refined silver, Rs. 1-1-5 per troy ounce.

The quantities of materials used for the purpose of fluxes were as follows:—Iron ore, 27,078 tons; limestone, 22,336 tons; and quartz rock, 1,180 tons.

SILVER.

22 ounces of silver valued at Rs. 30 was produced from the Lowa gold and copper mine in the Manbhum district.

GOLD.

The output of gold in 1933 was 267 ounces which was obtained from the Manbhum and Singhbhum districts of Bihar and Orissa.

TIN AND WOLFRAM ORES.

The output of tin ore was 3,209 tons, valued at Rs. 45,87,653, as compared with 2,957 tons, valued at 29,45,480 in 1932. 836 tons of wolfram ore valued at Rs. 4,22,332 were produced, as compared with 848 tons, valued at Rs. 2,95,093 in 1932.

CHROMITE ORE.

The production of chromite ore was 9,770 tons, valued at Rs. 1,42,434, as compared with 7,866 tons, valued at Rs. 1,12,392 in 1932.

COPPER ORE.

The output of copper ore was 201,722 tons, valued at Rs. 22,12,966, as compared with 175,375 tons, valued at Rs. 25,15,980 in 1932. The whole of the production came from mines belonging to the Indian Copper Corporation, Limited, in the Singhbhum district. The production of refined copper at Mosaboni was 4,800 tons, as compared with 4,143 tons in the previous year. The rolling mill produced 6,143 tons of yellow metal sheet as compared with 5,440 tons in the previous year. In the production of these sheets 3,774 tons of refined copper were consumed. The average selling price of copper ingots and yellow metal sheet were Rs. 599 and Rs. 631 per ton, respectively.

The development of the new Dhobani mine, also belonging to the Indian Copper Corporation, Limited, and situated in the same area as the Mosaboni mine, is proceeding vigorously with a view to the bringing of the mine into production as soon as possible.

As mentioned in an earlier paragraph 12 550 tons of copper matte were produced in the smelting of lead-silver ore in Burma.

ZINC ORE.

From the composite ore mined at Bawdwin mine in the Northern Shan States, Burma, 61,432 tons of zinc concentrates were produced for shipment. The production in 1932 was 44 484 tons.

GEMS.

1,103 carats of rubies valued at Rs. 583 were mined in the Katha district in Burma.

MICA.

The quantity of mica consigned was 41,005 cwt., valued at Rs. 16,79,045, as compared with 32,644 cwt., valued at Rs. 14,31,901 in 1932. The increase was 25.61 per cent. The output of dressed mica in 1933 was 43,240 cwt. as compared with 36,557 cwt. in 1932.

The quantities of mica and splittings shipped in 1932 and 1933 are as follows :—

	Cwt.	Rs.
1932 . . .	31,518	26,55,578
1933 . . .	35,925	31,01,630

In addition 17,043 cwt. of "pattern cut" and scrap having a value of Rs. 2,11,227 were shipped, as compared with 10,732 cwt., valued at Rs. 1,23,394 of the same stuff in 1932.

ROCK-SALT.

The production of rock-salt was 145,838 tons, as compared with 150,286 tons in the previous year. The scheme for placing crushed rock-salt from the Khewra mine in the Punjab on the Bengal market was delayed owing to the unsuitability of the machinery but it is hoped soon to be able to improve the plant.

LIMESTONE.

The reported production of limestone was 1,120,110 tons, valued at Rs. 13,64,043, as compared with 725,378 tons, valued at Rs. 9,55,700 in 1932.

STONE.

Returns were submitted by the owners of one hundred and sixty-two stone mines, and the figures of production were as follows :—1,666,766 tons of igneous rock ; 40,793 tons of laterite ; 61,739 tons of sandstone ; 4,304 tons of gravel ; and 8,616 tons of murum. The total production was 1,782,218 tons, as compared with 1,387,207 tons in 1932.

CLAYS.

From the thirty-one clay mines from which figures were obtained 46,712 tons of fire-clay, 17,122 tons of china clay and 40,236 tons of ordinary clay were produced.

OTHER MINERALS.

The production of other minerals was as follows :—

8,060 tons of slate, valued at Rs. 1,71,413 ; 11,131 tons of magnesite, valued at Rs. 67,557 ; 3,081 tons of gypsum, valued at Rs. 4,988 ; 2,720 tons of barytes, valued at Rs. 20,614 ; 9,126 tons of steatite, valued at Rs. 40,668 ; 259 tons of ochre, valued at Rs. 2,585 ; 677 tons of felspar, valued at Rs. 5,877 ; 37 tons of apatite, valued at Rs. 372 ; and 16,901 tons of sand, valued at Rs. 12,621. Small quantities of Fuller's earth, beryl and bismuth were also produced.

SECTION III.—ACCIDENTS.

During the year 1933 at mines regulated by the Indian Mines Act, 1923, there were 142 fatal accidents which is 21 less than in 1932 and 58 less than the average number in the preceding five years.

In addition to the fatal accidents there were 655 serious accidents involving injuries to 670 persons, as compared with 600 serious accidents involving injuries to 613 persons in the previous year. No record is maintained of minor accidents. The so-called "serious" accidents reported are those in which an injury has been sustained which involves, or in all probability will involve, the permanent loss of or injury to the sight or hearing or the fracture of any limb or the enforced absence of the injured person from work for a period exceeding twenty days. One hundred and fifty three persons were killed and 702 persons were seriously injured. The latter figure includes 32 persons injured in fatal accidents. The number of persons killed was 47 less than in 1932. One hundred and thirty persons killed were men and 23 were women. In four cases three lives, and in three cases two lives were lost.

The proportions of accidents which occurred to men and women, respectively, underground, in open workings and on the surface were as follows :—

	No. of fatal accidents.	No. of men killed.	No. of women killed.	Death rate per 1000 persons employed.		No. of serious accidents.	No. of men injured.	No. of women injured.	Serious injury rate per 1000 persons employed.	
				Men.	Women.				Men.	Women.
Underground .	113	106	16	1.06	1.25	512	483	43	4.85	3.36
Open workings.	14	13	3	0.42	0.28	22	12	11	0.39	1.03
Surface . .	15	11	4	0.27	0.33	121	110	11	2.71	0.92

There was a reduction in the death rate of men employed underground, while the death rate for women employed underground was slightly higher than last year. The death rates for persons employed on the surface and in open workings showed very little change. The causes of the fatal accidents have been classified as follows :—

	No. of fatal accidents.	Percentage of total number of fatal accidents.
Misadventure	100	70.42
Fault of deceased	12	8.45
Fault of fellow workmen	6	4.23
Fault of subordinate officials.	13	9.15
Fault of management	7	4.93
Faulty material	4	2.82
	142	100.00

Firedamp.—There were two accidents resulting in six deaths due to ignitions of firedamp. There were also two serious accidents causing injuries to three persons. One of these occurred in a mica mine causing injury to one person. In one accident which occurred at Aldih colliery in the Raniganj coalfield nine persons were severely burnt and three of them died, while in an accident at Jamadoba colliery in the Jharia coalfield three persons lost their lives. Both of these accidents are described in detail later on in this report as well as two other ignitions of inflammable gas in which persons were seriously injured.

Falls of roof and sides.—Falls of roof and sides caused 77 fatal accidents and 166 serious accidents. As compared with the figures under this head in the previous year the total number of accidents decreased from 246 to 243; the number of persons killed decreased from 105 to 84; and the number of

persons seriously injured increased from 157 to 174. Eighteen accidents involving the death of 22 persons were caused by falls of roof and sides in depillaring areas. In four other accidents four persons were killed by being struck by props which had been knocked out by falls of side in depillaring areas. There were, as usual, several accidents due to persons working in places which had not been allotted to them. Several fatal accidents occurred due to falls of ground in open workings.

In shafts.—There were 3 fatal accidents and 16 serious accidents in shafts, as compared with 6 fatal accidents and 12 serious accidents in the previous year. In one case as a miner was in the act of stepping into a cage from an intermediate landing in a shaft, the cage began to ascend and he was precipitated to the bottom of the shaft and killed. In one case a fitter fell from a scaffold in the shaft.

Suffocation by gases.—There was only one accident by suffocation of gases but as it occurred on the surface and the person who was killed was unemployed, the accident has been classed as non-statistical. The circumstances of the accident are described in detail later on in this report.

Explosives.—There were 10 fatal accidents and 25 serious accidents caused by explosives. In the previous year the figures were 12 and 17, respectively. In four accidents four persons lost their lives through going back on shots which had not exploded; in one accident one person was killed in attempting to remove a misfired charge of explosive and in another a miner was killed on the surface by a piece of stone which was projected a distance of 670 feet during blasting operations. The last accident is described in detail elsewhere in this report.

Haulage.—There were 25 fatal accidents and 156 serious accidents on haulage roads. The accidents due to haulage have been classified as follows:—

Classification.	Fatal.	Serious.	Total.
Haulage ropes breaking	3	3	6
Coupling chains and hooks breaking	4	..	4
Drawbars breaking	1	1	2
Couplings becoming detached	3	6	9
Riding on sets (authorised)	1	2	3
Riding on sets (unauthorised) . . . . .	..	7	7
Allowing tubs to run uncontrolled . . . . .	..	1	1
While hand-tramming tubs	5	61	66
While guiding tubs on a curve	2	9	11
Following derailments or while re-railing tubs	1	19	20
While coupling or uncoupling tubs	1	6	7
While resting on or loitering about haulage roads . . . . .	..	13	13
Crushed against tubs, sides of roadways, doors, etc.	1	6	7
Unclassified	3	22	25
Total	25	156	181

Note.—In one fatal accident there was evidence of the drag not having been used, and in one serious accident the rake over-rode the drag.

In inviting attention to the accidents due to breakage of ropes, couplings, etc., I wish to emphasise the necessity for a careful examination of the state of all coupling chains and drawbars at least once a month and the repair of any defects observed before the tub is again put into use. Several accidents were due to tubs becoming uncoupled. A number of accidents were due to badly laid haulage tracks and tramlines, while some other accidents resulted from trammers having to guide tubs round curves. The laying of the haulage track is often not given the attention it deserves. If a curve is laid in a proper manner and an adequate number of correctly aligned pulleys fitted, it should not be necessary for trammers to handle tubs as they pass round curves. Well-laid haulage tracks will amply repay for the additional expense involved by reducing the accident rate and minimising the time lost in stoppages, and the cost of repairs to tubs due to derailments. The number of accidents due to resting or loitering on or near haulage roads is still excessive and indicates the necessity for stricter supervision by the underground staff.

Underground Machinery.—Fourteen serious accidents were caused by underground machinery.

Sundries Underground.—Ten fatal accidents and 156 serious accidents were due to miscellaneous causes underground.

Surface Machinery.—Two fatal accidents and thirteen serious accidents were caused by surface machinery.

Boilers and Pipes Bursting.—There was one serious accident from this cause.

Surface Railways and Tramways.—Five fatal accidents and 49 serious accidents took place on surface railways and tramways.

Electricity.—It is again satisfactory to note that there were only three serious accidents attributable to electricity.

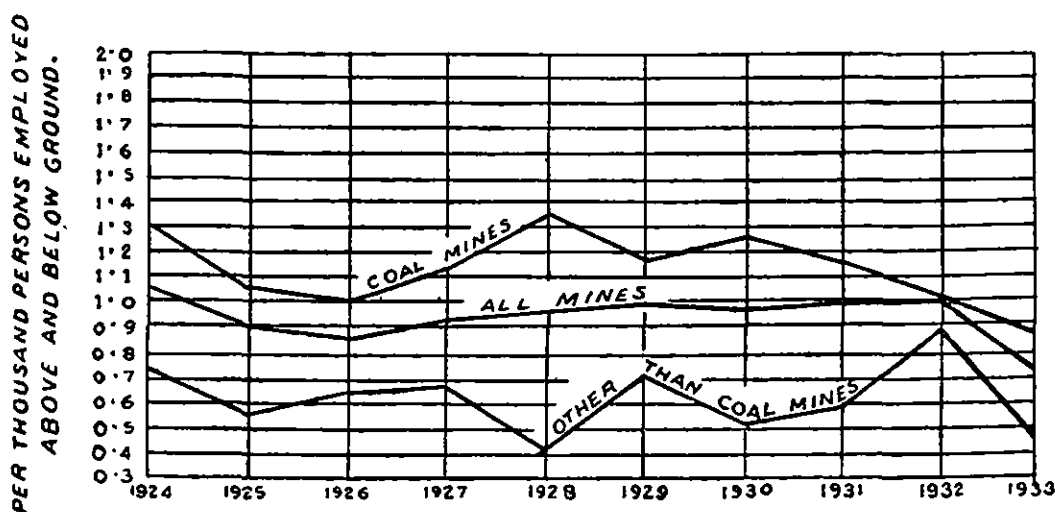
Miscellaneous on the Surface.—Eight fatal accidents and 54 serious accidents of this kind took place on the surface.

Accidents excluded from the statistics.—Twenty-three accidents causing 25 deaths were excluded from the statistics for reasons which are given in Appendix II.

Death rates.—The death rate per thousand persons employed above and below ground was 0·74 which was less than the rate in 1931 and in 1932. The average rate for the preceding five years was 0·98. At coal mines the rate was 0·86, as compared with 1·02 in 1932. At mines other than coal mines the rate was 0·47, as compared with 0·87 in 1932.

The chart below shows graphically the variations in the death rate during the decade 1924-33.

CHART SHOWING
THE DEATH RATE FROM ACCIDENT DURING THE PERIOD 1924-33.



The death rate per million tons raised at coal mines was 6.83, while that of the preceding five years was 9.04. The death rate on the basis of output was the lowest since 1905.

Deaths occurring in each class of mines were as follows :—

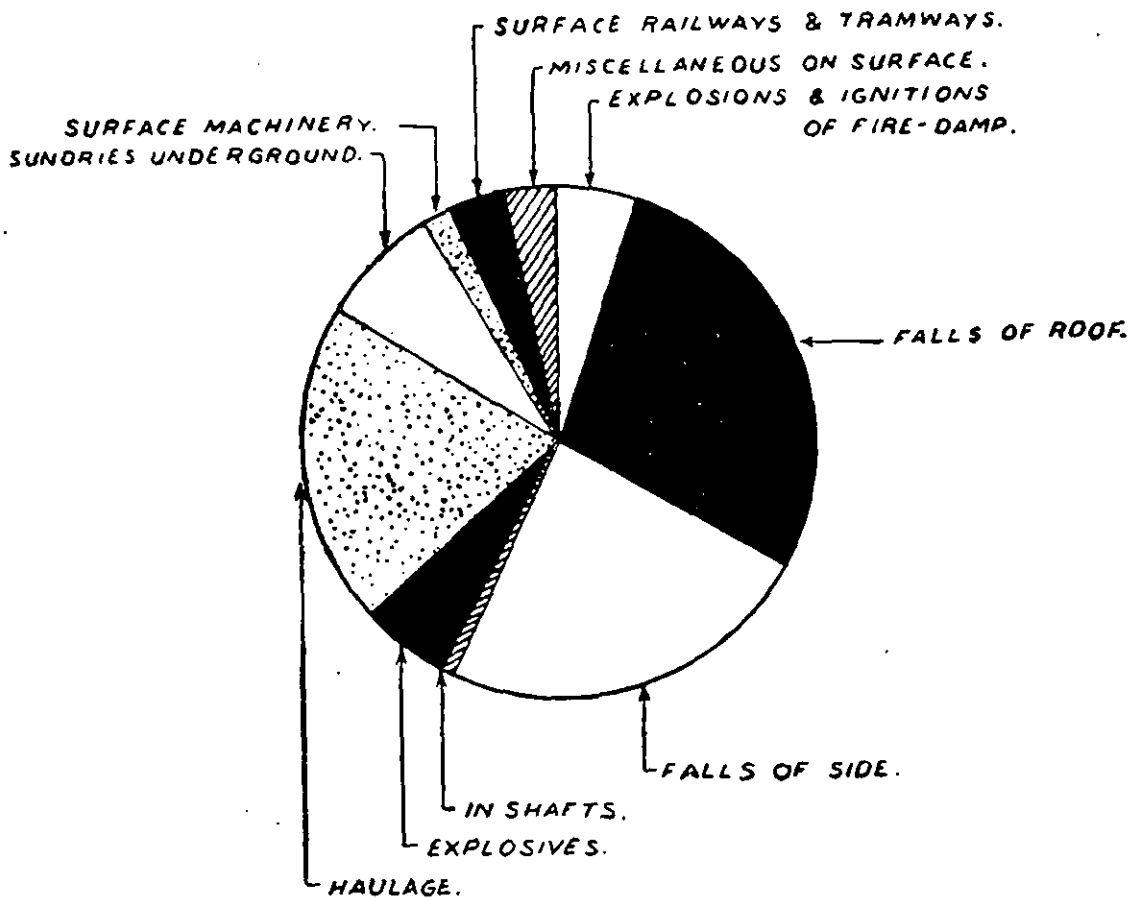
124 in coal mines, 3 in mica mines, 4 in silver-lead mines, 10 in tin and wolfram mines, 6 tin limestone mines, 4 in stone mines, 2 in a copper mine.

Six persons lost their lives by explosions or ignitions of firedamp; 40 by falls of roof; 44 by falls of side; 3 in shafts; 10 by explosives; 25 by haulage; 10 by other accidents underground and 15 on the surface.

The accompanying chart shows the relative importance of the various causes of accidents during the year. It will be noted that falls of roof and

sides were responsible for more than half of the persons killed and that haulage was the next most important cause.

CHART SHOWING DISTRIBUTION OF CAUSES OF PERSONS KILLED IN AND ABOUT COAL MINES IN THE YEAR 1933



A list of the fatal accidents appears in Appendix II, Table I, where each is described briefly. The details of certain accidents are reported at greater length as follows:—

EXPLOSIONS AND IGNITIONS OF FIREDAMP.

No. 1.—The Tata Iron and Steel Company, Limited's Jamadoba coal mine.

This accident occurred in a gallery in No. 18 seam. The inclination of the seam varies throughout the colliery and in the district in which the accident

occurred the seam is steeply inclined at a gradient of 1 vertical to 3 horizontal. From time to time traces of inflammable gas had been reported in the seam and in May 1932 an ignition of gas occurred in a rise gallery resulting in a miner being severely burnt. As a result of these occurrences of inflammable gas statutory inspections under Regulation 70 were required to be made with a locked safety lamp. No inflammable gas had however, been found in the section of the workings in which the ignition under discussion occurred. Plan No. 1 shows the arrangement of the workings in the district. No work had been done in the gallery in which the ignition took place for three days before the occurrence and consequently no examination of the condition of the place had been made during that period.

On the 19th October two surveyors and three chainmen under the charge of an overman were deputed to make measurements of the amount of coal that had been cut since the last measurement. One of the surveyors and three chainmen had three safety lamps and a carbide lamp between them. The other surveyor had an electric torch and the overman carried a safety lamp and a carbide lamp. The overman had been specially appointed to take charge of the party and it was his duty to examine all the galleries for inflammable gas before any other member of the party entered. It appears that the overman carried out his duties in most of the galleries in which measurement was made but did not make an examination of the gallery in which the accident occurred. The three chainmen were sent into the gallery to make measurements. Apparently one of them had a carbide lamp with him. As they were carrying out their duties an ignition of inflammable gas occurred and all the three chainmen were severely burnt and afterwards died.

On the morning after the accident the Inspector of Mines No. 1 Circle, who held an enquiry into the occurrence found about 5 per cent. of gas at two feet from the face and $2\frac{1}{2}$ per cent. at ten feet from the face. This gas had presumably accumulated since the ignition. He did not find any gas in any of the adjoining galleries. Judging from the position of the overman and the two surveyors, none of whom were burnt, the ignition was confined to the rise gallery in which the three chainmen were at work. The Inspector of Mines was of the opinion that if the overman had carried out his duties properly and made tests for inflammable gas the accumulation would have been detected. Accordingly he considered the overman mainly to blame for the accident. The overman's certificate was suspended for one year.

The Inspector of Mines considered that the amount of air in circulation in the district was adequate to the requirements but that it had not been properly conducted into the face in each gallery. I addressed the Agent of the colliery and pointed out that I was not satisfied that adequate attention had been paid in the district in which the ignition occurred to the proper coursing of the air into places in which an accumulation of inflammable gas might occur and particularly in galleries proceeding to the rise. I pointed out that although gas appeared to be given off from the face very slowly dangerous accumulations were more likely to occur if a working place had been standing for some time than if it was being continuously worked. This is an aspect of the accident to which I invite the attention of all managers of gassy mines. I prescribed the precautions that should, in future, be taken

in the workings of No. 18 seam and also in those of the 17 seam which is also being worked at the colliery. I also recommended that greater attention should be paid to the proper coursing of the air into rise galleries as it is usually in such galleries that accumulations of inflammable gas are found.

No. 2.—The Aldih Coal Company, Limited's Aldih coal mine.

In this colliery the Dishergarh seam with a thickness of 14 feet is worked from shafts 560 feet deep. A reference to Plan No. 2 shows that two intrusive dolerite dykes approximately parallel to each other and about 200 feet apart, traverse the seam at an angle of about 30 degrees to the line of strike. In the area in which the ignition occurred the "whole" working, *i.e.*, the gallery driving, was completed early in 1932. Since that date the extraction of pillars had been carried on. The area is served by two haulage roads—one is known as No. 4 cross-cut serving the western part of the area and the other as No. 3 cross-cut serving the eastern part. The explosion occurred at the point A shown on the plan about 60 feet west of No. 4 cross-cut and immediately below the dykes.

It would appear that early on the morning of 9th November the goaf adjacent to the place of accident showed signs of weighting and the sirdar in charge withdrew some props from the area marked B on the plan. The roof continued weighting until about 12-30 P.M. on the same day and in consequence no work was permitted in that area during the morning shift. At about 1 P.M. the goaf appeared to be quiet and an inspection was made by the sirdar in charge, with a safety lamp. He tested for the presence of inflammable gas at the top of No. 1 Rise gallery but found no trace of gas. At about 2-30 P.M. the morning shift sirdar met the afternoon shift sirdar and instructed him to employ miners to cut coal at the inbye end of No. 3 Level as long as the goaf remained quiet. The afternoon shift sirdar stated that he also tested for inflammable gas in No. 1 Rise gallery up to a fence which had been erected in the gallery and also near the roof at the inbye end of No. 3 Level and found nothing. He did not, however, go to the face of No. 1 Rise gallery. It appears that at the time of the accident nine miners were working in or about the bottom of No. 1 Rise gallery. They went down the mine between 2-40 and 3 P.M. They reached No. 3 Level at about 3-30 P.M. and probably rested for a short time. They were instructed by the afternoon sirdar to remove bricks from an old stopping at the corner of No. 3 Level and then to cut coal from the roof of the level. They were also told to dress the rise side pillar at the inbye end of No. 3 Level. The sirdar then went to inspect galleries off No. 4 cross-cut lying between the dykes. At about 4-20 P.M. an explosion occurred. At the time the nine miners were removing bricks and doing other work preparatory to cutting roof coal. They all stated in evidence that the goaf inbye of No. 3 Level was uneasy before the explosion occurred and three witnesses said that there was a heavy fall of roof in the goaf immediately before the explosion. All the nine persons were burnt as the result of the explosion. There were three other persons removing rails near to the place of accident but although the flame passed over them they were not burnt or injured.

The manager was informed about the accident at about 4-30 P.M. and immediately proceeded underground. The injured persons were all able to

walk to the pit bottom except one who had to be transported on a trolley. The nine injured persons were removed to the hospital attached to the colliery and were given treatment. One, however, died shortly after reaching the hospital: afterwards two others died. Six of the injured persons recovered.

On only one previous occasion had inflammable gas been detected in the mine and that was on the 24th April 1926 when an ignition of gas took place in a narrow gallery which was being driven through a fault in the eastern section of the mine and some 4,000 feet distant from the place of the explosion under discussion. After the ignition of inflammable gas on the 24th April 1926 the Chief Inspector of Mines asked for the following precautions to be adopted :—

- (a) Examinations for gas with a locked safety lamp within two hours of the commencement of each shift.
- (b) Similar examinations to be made within fivehourly periods.
- (c) Use of safety lamps in all narrow main galleries driven more than one pillar length in advance of the ventilation.
- (d) Narrow galleries to be driven not more than 20 feet before being widened out ; and
- (e) Steps to be taken to course the air round working places.

Mr. N. Barraclough, Inspector of Mines, No. 2 Circle, who enquired into the accident discovered that there had been a subsidence to the surface during the night of 9th November. The position of the subsidence is marked on the plan. The Inspector of Mines deduced from this that there had been a general settlement of the goaf in the vicinity of the place of accident in the evening of the 9th November. From the plan it will be seen that the line of goaf immediately below the lower of the two dykes is at an angle of about 35 degrees to the line of strike and that the west rise corner of the goaf is about 250 feet to the rise of a level line drawn through No. 3 Level. The area of goaf to the rise of this level line would form a natural reservoir for inflammable gas which is lighter than air. As pillars were withdrawn retreating towards No. 4 cross-cut which was the return airway for the district there would be little or no circulation through the part of the goaf comprising this reservoir. The inspecting officer was of the opinion, therefore, that there was a quantity of inflammable gas in the goaf to the west and rise of No. 3 Level and that this gas was expelled by falls of roof and settlement of the goaf on the day of accident. He was of the opinion that the inflammable gas which caused the ignition was expelled from the goaf shortly before the ignition took place.

This accident points to the risk of accumulations of inflammable gas in goaves being expelled during roof falls and subsidences and indicates that in a seam in which inflammable gas is known to occur or is likely to occur, it is necessary to take precautions not only during gallery driving but also during the extraction of pillars. I made an inspection along with the Inspector of Mines, No. 2 Circle, and the Agent and manager of the colliery on the day after the accident and gave instructions to the Agent to put the whole

colliery on safety lamps. As giving an indication of the precautions which, in addition to the use of safety lamps, should be taken in such cases I give an extract from a letter addressed by me to the Agent of the colliery :—

“ The mine has now been put on safety lamps throughout. While this action will constitute in itself a considerable safeguard I would also invite your attention to the three following points :—

(1) That careful inspections with safety lamps for the presence of inflammable gas should be made regularly as near to the edge of the goaf as possible and particularly on the rise side of working places where inflammable gas may collect. Care should be taken to test as high up as is practicable.

(2) When a working place is on ‘ weight ’ and there is a probability of a fall of roof, large or small, in the goaf, I consider that it is an important precaution that persons should be withdrawn from that place until the roof has completely settled.

(3) In depillaring areas the ventilating current should be coursed along the edge of the goaf as far as is practicable.”

As I considered the matter of sufficient importance to be brought to the notice of all owners and managers of gassy mines I issued a circular to all such embodying the above recommendations.

I wish to record my appreciation of the care and attention given by the hospital staff attached to the colliery to the persons who were burned. Nine persons were severely burned and only three died. It is not often that persons severely burned in an explosion of inflammable gas recover and it says a great deal for the careful treatment given by the colliery doctor and his staff that he was able to save six out of the nine lives. His success was mainly due to the application of the tannic acid method of treatment and as I wish to emphasise the great efficacy of this method of treatment in such cases I have drawn attention to it in a special paragraph elsewhere in this report.

THE BURRAKUR COAL COMPANY, LIMITED'S SALTORE COAL MINE.

This accident, although no deaths resulted from it evoked some important recommendations to which I wish to draw attention.

The ignition occurred in a stall, *i.e.*, a modified form of gallery, in the Dishergarh seam. After the cessation of work on the day shift the afternoon shift sirdar examined the place and although he was unable to detect any inflammable gas he thought the place was “ a little warm ” and suspected that firedamp was accumulating. He, therefore, fenced off the stall at about 7 P.M. He made another inspection about 9 P.M. but again could not detect any gas. He left the fence in position however and on being relieved by the night shift sirdar informed him that he had fenced off the stall, giving his reasons for doing so.

The night shift sirdar tested for the presence of firedamp shortly after he took over his duties and found gas at a point about 7 feet from the face of the stall. He did not however, inform any of the miners who were waiting for working places about the presence of gas, assuming presumably that

the fence was sufficient indication that no work was to be done in that place.

At about 11 P.M. two miners went into the stall without having had instructions to go there. An ignition of inflammable gas took place and both men were severely burnt, though eventually they recovered from their injuries.

Both the miners had safety lamps but it was found afterwards that one of the safety lamps had defective gauzes, the defects consisting of holes in the tops of both gauzes. It was presumed that the gas had been ignited by the defective safety lamp.

The circumstances leading to the issue of the defective safety lamp were investigated. The lamp cabin was in charge of a supervisor who was assisted on the day shift and on the night shift separately by a staff consisting of one issue clerk, two lamp cleaners and two other assistants, one for filling the lamps with oil and one for lighting them. All the staff were authorised under Regulations 127(a) and 129. The inspecting officer was unable to specify the particular person responsible for passing the defective gauzes and considered the blame to have been shared by all the cleaners.

I took up the matter with the Agent of the colliery and disciplinary action in the form of a reduction of pay for a period of time was taken against the lamp cleaning staff.

I asked the Agent to consider the question of the re-organisation of the cleaning and examining staff, to request the manager to issue instructions on the cleaning, examination and inspection of lamps and to emphasise the importance of all safety lamps being issued in a safe working condition.

Shortly after the accident I visited the mine along with the Chief Mining Engineer, the Agent and manager and Inspector of Mines, No. 2 Circle (Mr. N. Barraclough). Mr. Barraclough pointed out that after the gauzes had been cleaned they should individually be held in front of the eye towards a good light as it was only in that way that the condition of the gauze could be properly examined. The re-organisation of the cleaning and examining staff was discussed and it was arranged that the supervisor should himself examine daily every gauze and that the under-manager should once a week make a thorough examination of all the lamps and report on their condition. After the accident some of the lamps were found defective and were rejected.

I was not satisfied with the method of working. The method consisted of opening out from the main level a narrow stall, 7 feet to 8 feet wide and then afterwards widening the stall to about 22 feet. Some of the stalls had been extended to a considerable distance without any inter-connecting galleries between neighbouring stalls. Two of the stalls in the district were at least 400 feet long with no inter-connecting gallery. I held that the method of laying out the workings was not a satisfactory one in a seam in which inflammable gas was given off as it was practically impossible to ventilate the faces properly. The Chief Mining Engineer agreed to change the system and to drive connections between adjacent stalls at distances not more than 100 feet apart.

I considered the matter of the proper examination of safety lamp gauzes of sufficient importance to warrant a circular letter being issued by Inspectors, Nos. 1 and 2 Circles, containing recommendations for such examinations to all owners and managers of mines in which safety lamps were used.

Messrs. F. F. Chrestien and Company, Limited's Khanakia mica mine.

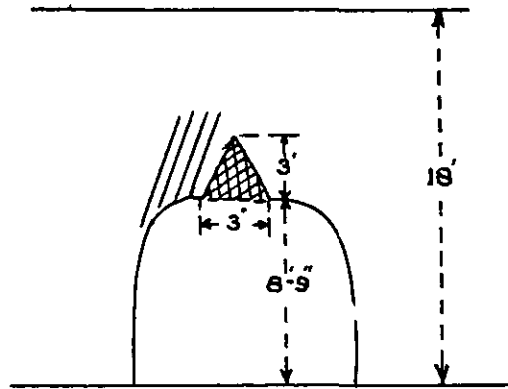
Although not unknown, it is most unusual to record an ignition of inflammable gas in a metalliferous mine. The ignition to be described occurred at the entrance of a rise heading in an incline which had been driven from the surface. The mine had not been worked since 1929 and had been allowed to fill with water. About a week previous to the occurrence it had been decided to re-open the mine and pumping operations were commenced. On the day of the accident a miner accompanied by a carpenter went to the incline to see the water level. They found that it was just below the first rise heading. The miner stated that he had looked at the water and just as he was turning round towards the entrance to the rise working an ignition of gas occurred and he was seriously burnt. He, of course, had a naked light with him. This appears to be the first occasion on record in India that inflammable gas has been known to be present in a mica mine. The officer who enquired into the accident thought that a quantity of marsh gas had been released from the strata after the heading was dewatered. The heading was near the surface and it is probable that the gas was formed by the decomposition of organic matter in the surrounding strata. After the accident a thorough test with a safety lamp was made and gas was detected in a drive which had been connected but was still sealed with water. After the water was removed and the air current resumed its normal course, the gas was dispersed. Since the accident regular inspections with a locked safety lamp have been made but no further accumulations of inflammable gas have been detected.

FALLS OF ROOF.

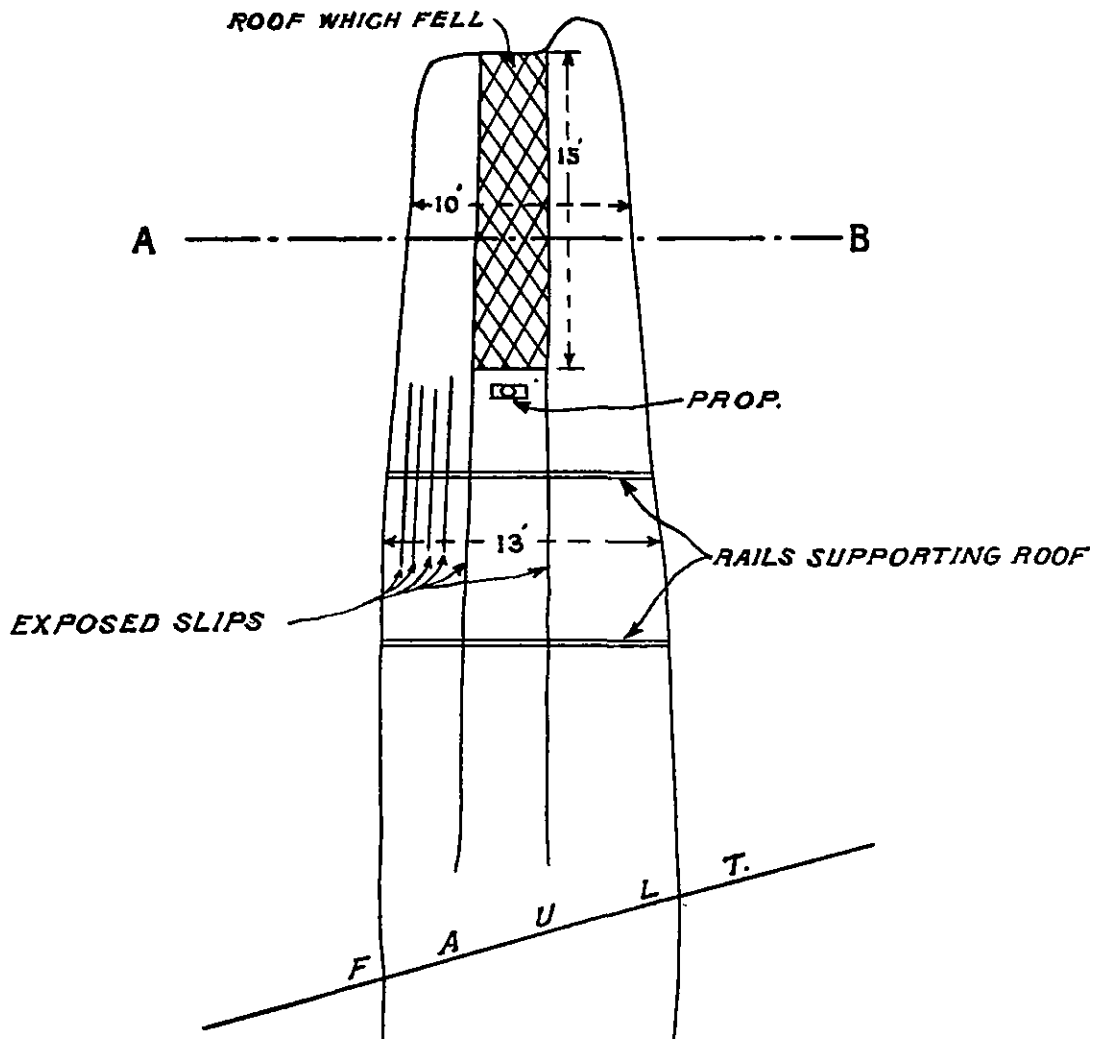
No. 12.—The Poniat Collieries Limited's Poniat coal mine.

This accident occurred in a part of a mine which is bounded by two faults about 300 feet apart. The seam is in consequence considerably disturbed. Some time before the accident the roof was found to be unsafe on account of a slip running along the top side of the gallery and another series of slips on the dip side of the gallery heading towards the top side. At one point in the gallery two rails had been inserted as cross-bars and timber placed lengthwise on the top of these to support the roof. One prop had been set in the centre of the gallery. At the time of the accident the face had advanced 15 feet beyond the prop. The seam is about 18 feet thick and the galleries were being driven about 9 feet high. While two miners were working at the face a triangular shaped portion of roof coal fell between the slips already mentioned over a distance of 15 feet from the face. The position at the time of the accident is shown in Plan No. 3. Both miners were seriously injured and one afterwards died. The overman stated that he examined the place and thought it to be safe as it did not give any warning by sounding. The Inspector of Mines, No. 2

PLAN AND SECTION ILLUSTRATING REPORT ON
 FATAL ACCIDENT BY FALL OF ROOF
 AT
 THE PONIATI COLLIERIES LTD'S PONIATI MINE.
 SCALE 1 INCH = 10 FEET.

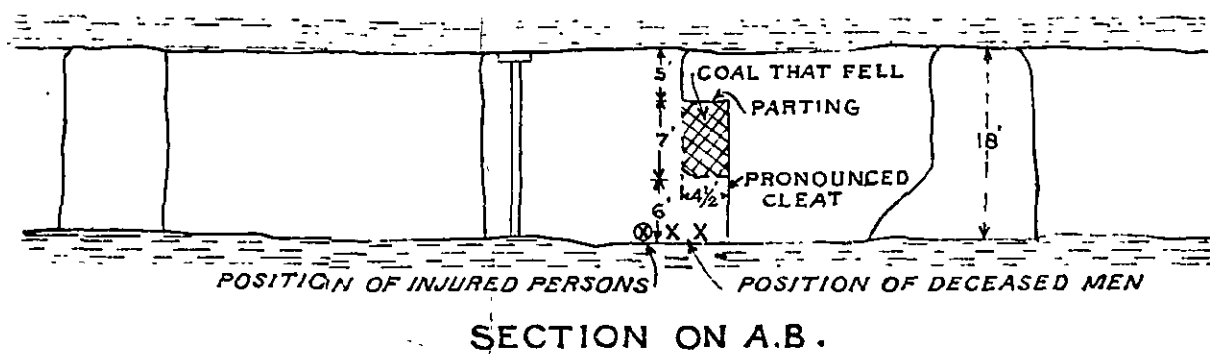
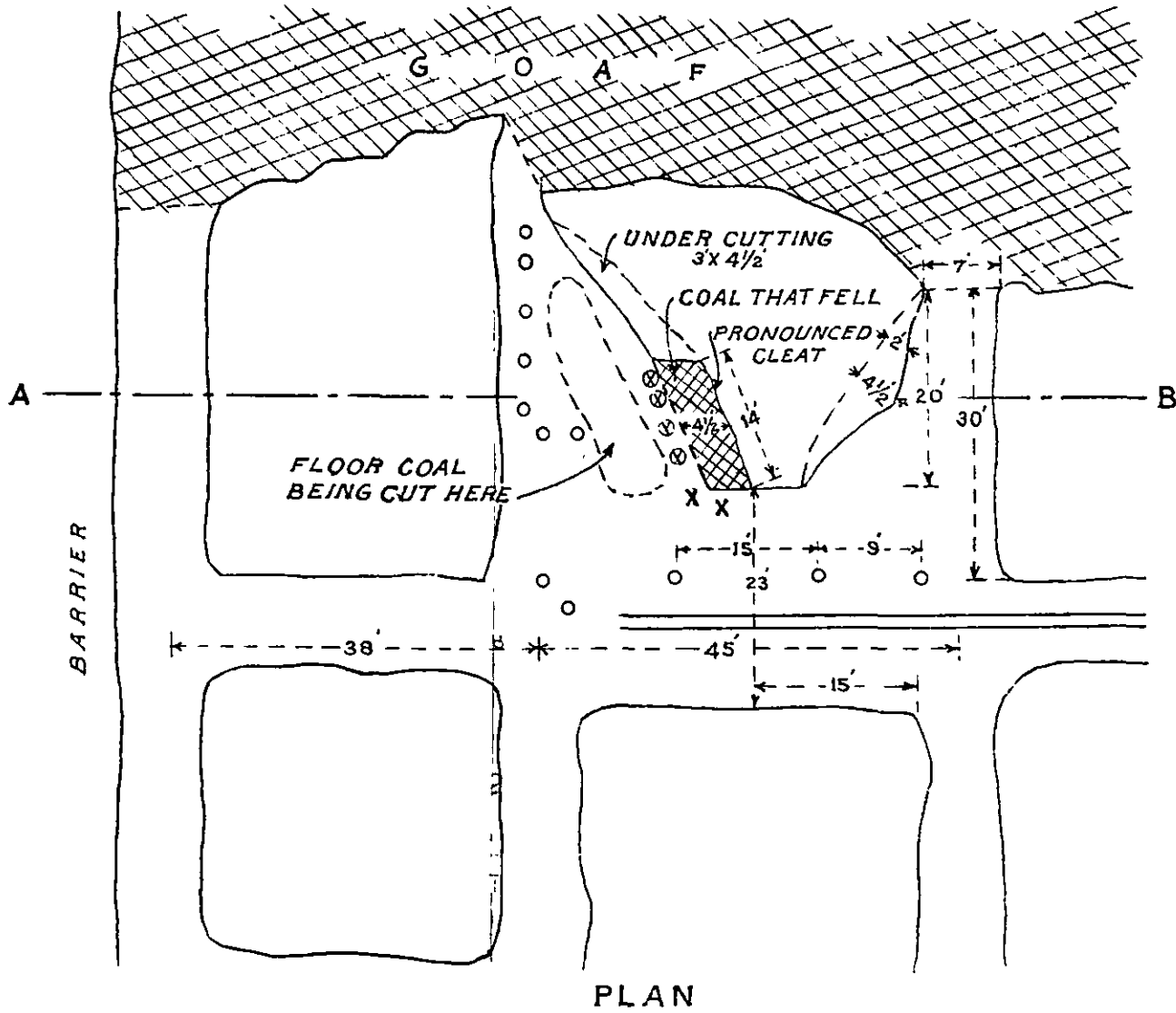


SECTION ON A.B.



PLAN

PLAN AND SECTION ILLUSTRATING REPORT ON
 FATAL ACCIDENT BY FALL OF SIDE
 AT
 SOUTH GOLUCKDIH COAL Co's SOUTH GOLUCKDIH MINE.
 SCALE 1 INCH = 20 FEET.



NOTE:-
 POSITION OF THE DECEASED PERSONS SHOWN THUSXX.
 " " " INJURED " " "⊗⊗⊗⊗
 PROPS " "○○

Circle, who enquired into the accident stated that as the coal was a solid triangular mass 3 feet wide at the base and 3 feet high it was likely that it would give no warning by sound but that probably it would have given warning by vibration. He remarks that it is a common fault amongst the overmen and sirdars in India not to test the roof by vibration and I would invite the attention of owners and managers of mines to the fact that particularly where the roof is readily accessible the best means of testing is either to put one's hand or a stick against the roof while the roof is being struck by the ordinary testing rod. In this way two indications are given—one by the sound and the other by the vibration. The inspecting officer was of the opinion that with proper and adequate testing and observation it should have been seen that the roof of the gallery was unsafe and it should have been systematically supported. The matter was taken up with the owners of the colliery and the manager afterwards issued instructions to the overmen and sirdars to set supports wherever cleats were observed, notwithstanding the apparent soundness of the roof.

Another matter to which the inspecting officer drew attention was the fact that although it was admitted that the gallery was unsafe when the cross-bars were set there was no record of the condition of the roof in the report book.

The regulations definitely require that the result of an examination should be recorded and I invite the attention of owners and managers of mines also to this aspect of the case.

No. 22.—The New Beerbhumi Coal Company, Limited's Barmondia coal mine.

This accident occurred in an area in which pillars were being extracted. The pillar under extraction was next the edge of a goaf and a row of props had been set along the goaf edge and a fence fixed to them. While a miner was loading coal, a large stone, 6' × 4' × 8" thick, fell from the goaf and pinned the miner beneath it, killing him.

It was pointed out by the Inspector of Mines that the fence was too near the goaf edge and should have been placed further back so that persons would not be so readily endangered either by stones falling from the goaf or by props being knocked out by such stones. In some cases a strip of coal is left against the edge of the goaf and this forms an excellent protection. Where this cannot be done, however, care should be taken to keep the fence as far back as possible from the edge of the goaf as, in the case of roof falls, stones may slide a considerable distance into the working places.

FALLS OF SIDE.

No. 41.—Messrs. South Goluckdih Coal Company's South Goluckdih coal mine.

In this colliery No. 10 seam which is 48 feet thick is being worked in two sections. The accident to be described occurred in the top section which is about 18 feet thick. At the place of accident (Plan No. 4) a pillar was being extracted. The system of extraction appears to have been to undercut the coal to a depth of 2 feet and to a height of 6—7 feet and then blast

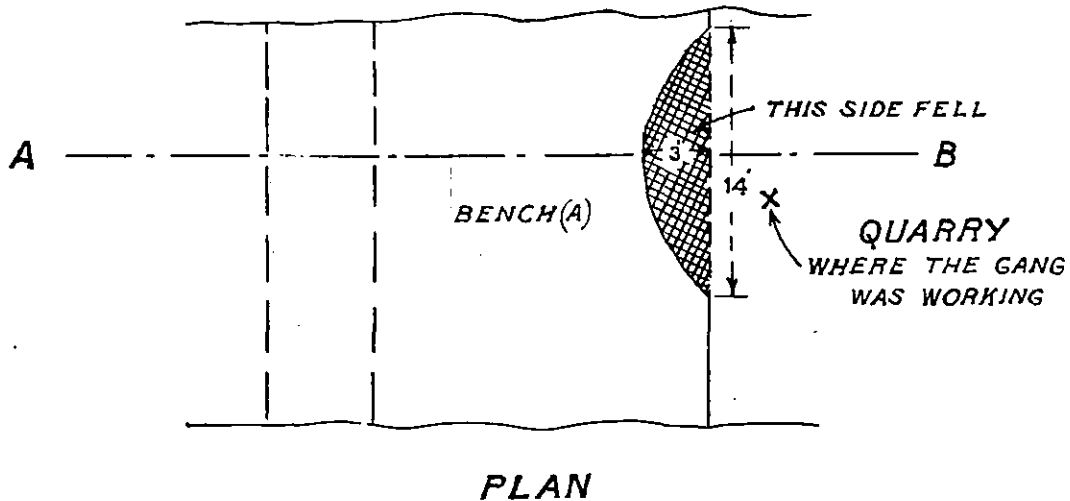
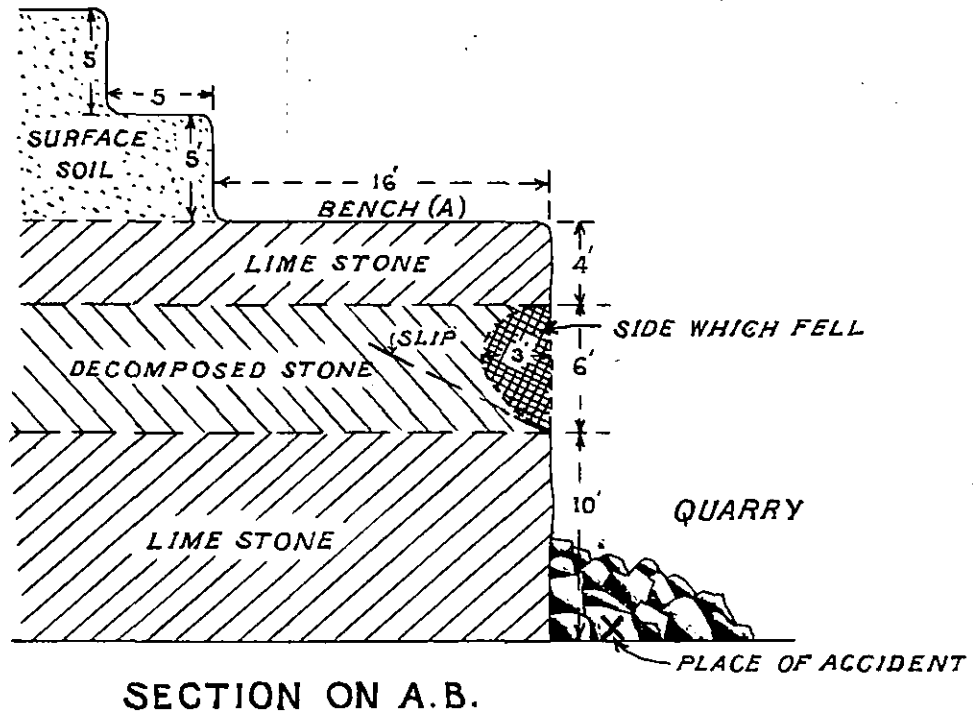
down the top coal. As the coal is hard this may have been a reasonably safe practice but at the time of the accident the undercutting had been done much in excess of two feet. It appears that the day shift overman examined the side of the pillar, which afterwards fell, on the day before the accident and considered the coal next the roof to be unsound. He did not allow any work to be done in that place during the day shift. He stated that he told the night shift overman that the side of the pillar was dangerous and that no work should be done on that side. He told his colleague, however, that floor coal might be cut close to the pillar. The night shift overman accordingly engaged ten men to cut floor coal close to the place where the coal was overhanging. He stated that he examined the roof and sides of the pillar and found them safe. He did not notice that there was a cleavage plane running through the pillar. The night shift overman also stated that he examined the place two or three times during the night shift and did not think it was unsafe. The manager stated that on the day before the accident he instructed the day shift overman not to do any further undercutting as the undercutting had exceeded the recognised distance of 2 feet. He stated however, that he examined the place and did not consider that the overhanging coal was dangerous. On the night shift at about 5 A.M. in the morning the overhanging coal shown on the plan fell, killing two persons outright and seriously injuring four others. A third person afterwards died as a result of his injuries.

The Inspector of Mines, No. 1 Circle, who enquired into the accident stated that in his opinion the cause of the accident was the faulty system of working. He held that it was a dangerous practice to extract pillars by undercutting from the side and then to drop the coal. In all seams there are cleavage planes—some very much more pronounced than others—and the distance apart between these cleavage planes varies a great deal. The coal which fell came from a pronounced cleat and although this cleat was stated not to have been observed either by the overman or the manager it should have been suspected. The coal had been undercut up to the cleavage plane which formed a line of weakness and with a clear parting from the roof there was no support and the coal simply fell due to its own weight.

The inspecting officer stated that while the manager was to some extent blameworthy in that he permitted a system of working which introduced danger he did not consider the manager incompetent or negligent as if the undercutting had been no more than 2 feet the side would not probably have become dangerous. The Inspector of Mines considered that the chief blame was attached to the two overmen, both the day shift and night shift overmen. He considered that if the day shift overman considered the pillar unsound and informed the manager accordingly he should have fenced off the place but he failed to do so. Moreover he should have made a report in the report book to the effect that the side was dangerous and stated what steps had been taken to remedy the defect, but no such report had been made. He considered that the night shift overman was also culpable in that although he stated that he had made an examination he did not discover that the side was dangerous. The certificates of both the day shift and night shift overmen were suspended for a period of six months.

The lesson to be learnt from this accident is that it is always dangerous to extract a pillar from the bottom upwards. The coal next to the roof should

PLAN AND SECTION ILLUSTRATING REPORT ON
 FATAL ACCIDENT BY FALL OF SIDE
 AT
 COWASJI BEJONJI BAJAN'S LIME STONE QUARRY.
 SCALE 1 INCH = 10 FEET.



always be kept leading and, if possible, pillars should be extracted in benches, the bench next the roof being kept in advance. When a pillar has to be extracted in one operation the method of extraction should be such as to preclude, as far as possible, overhanging coal and if at any time there should be any overhanging coal such should be taken down before any other work is allowed in the vicinity of the place.

No. 51.—Mr. Cowasji Bejonji Bajon's Katni limestone mine.

This accident occurred in a limestone quarry which is approximately 400 feet long \times 400 feet broad \times 110 feet deep at its deeper end. The dip side of the quarry, however, was waterlogged. At the time of the accident work was proceeding on the rise side of the quarry which was shallow. The position of the face at the time of the accident is shown in Plan No. 5. Eight men were set to work on the floor at the place of accident. They had worked for about half an hour in levering up a layer of limestone from the floor when a mass of decomposed stone interlain between two beds of limestone fell upon them from a height of about 10 feet. One of the miners was buried under the fall and suffocated, three others were seriously injured and a fifth man received minor injuries. The mass of decomposed stone which fell came off a slip which is shown on the plan. The condition of the side was probably made worse by a shower of rain which had fallen on the previous evening although the manager stated that he found the place safe during his inspection that evening after the rain. I took up the matter with the owner and pointed out that while the surface soil appeared to have been taken back in benches 5 feet high no attempt had been made to remove the layer of decomposed stone in front of the lower bed of limestone. I recommended to him that the upper 4 feet of limestone should be removed separately and that the bed of the decomposed stone should be removed or benched ahead of the lower 10 feet of limestone. The owner agreed to carry out my instructions in future. I visited the mine myself at a later date. It appeared that an effort was being made to carry out my instructions.

In open workings it is always advisable to work the deposit in benches, the upper benches being ahead of the lower. This is specifically required by Regulation 38 of the Indian Metalliferous Mines Regulations which states that "the sides of open workings shall be sloped, stepped or secured in such a manner as to prevent danger from falls of material". In particular with a deposit which consists of beds of varying composition and nature each bed should be benched forward separately.

No. 61.—Messrs. D. Hamir & Sons' Durgapur coal mine.

This accident occurred in No. 10 seam, Jharia, in a gallery 7 feet high and 10 feet wide. It appears that a miner entered a fenced off area and was killed by a block of coal which fell from the roof and side of a gallery. It was found by the inspecting officer that the miners had to carry coal for a long distance along a zig-zag path, round a number of pillars. This is a practice which is far too common in some mines and in my opinion such circumstances are not conducive to the discouragement of cutting coal in an unauthorised place. It is generally a simple matter to lay the tramline

close up to the working places and so avoid the necessity for the carrying of coal long distances with the inevitably consequent temptation to cut coal surreptitiously from pillars nearer the tramline.

EXPLOSIVES.

No. 85.—The C. P. Cement Company, Limited's Kymore limestone mine.

This accident occurred during the course of blasting a round of six shots of dynamite in a trench which had been cut to prove a limestone deposit. The explosion of the charges projected a piece of dolomite said to be about 2½" cube in size, to a distance of 670 feet. One of a group of work-people who were standing on the spot was struck on the forehead and succumbed to her injuries twenty-seven days later. It was thought that the work-persons had been removed to a safe distance but it is clear from the accident that that was not so. Pieces of stone may be projected very long distances by the discharge of explosives, and after the accident the manager of the mine gave orders that persons should be removed to a distance of 1 000 feet instead of 500 feet which had been the instructions before the accident.

The attention of all users of explosives in open workings is invited to this accident.

No. 86.—The Secretary of State for India's Kargali coal mine.

During the last year or so liquid oxygen explosives have been used to a considerable extent in the Giridih collieries and in the Bokaro collieries belonging to the State Railways. The explosives consist of paper cartridges containing an absorbent substance mixed with other combustible constituents. The cartridge is inert until soaked in liquid oxygen. The weight of the cartridges used at this colliery was 2 oz. dry and 7 oz. soaked. After the cartridges are soaked they remain strongly explosive for several minutes, *i. e.*, until the major portion of the oxygen has evaporated. The cartridges are fired by means of ordinary safety fuse. Soaking is carried out in a special can consisting of a triple casing constituting a vacuum vessel with a protective shell. The cans are provided with a hinged lid which may be secured by means of a hasp and staple.

The accident to be described occurred in a quarry. A shotfirer was firing some shots while two assistants having in their possession three soaking cans were waiting some distance away. One of the cans was said to have been empty, another to have contained cartridges (probably between 20 and 30) which had previously been soaked and had become somewhat dry and the third contained liquid oxygen and possibly some cartridges. It was dark at the time and each of the three persons was carrying a hurricane lamp. As the shotfirer joined the others he saw one of them smoking. He remonstrated with him but apparently did not actually see him extinguish his "biri" or throw it away. Telling the two men to follow with the cans, the shotfirer started to walk away and had not gone far before there was a loud explosion. It appears that the two assistants were pouring some of the liquid oxygen from one can on to the cartridges in another can to re-soak them. Apparently the contents of the can suddenly took fire and one of the assistants appeared

to have been trying to extinguish the flames. There was a loud explosion and one of the assistants received burns all over his body and died the following day. Another assistant was struck by pieces of metal in various parts of the body, several pieces being buried in the flesh. The shotfirer received a slight injury to his right thumb. The twisted and shattered remains of one of the cans was found 40 feet from the place of the explosion, and later more pieces of metal were picked up within a radius of about 150 feet. One can was completely shattered. As it was not clear how the accident occurred several experiments were carried out and it appeared from the experiments, as was indeed to be expected, that when a cartridge soaked in liquid oxygen is set on fire in a confined space a violent explosion is likely to take place. After the accident an improved design of fastener for the container was introduced.

As the result of the correspondence arising out of this accident it transpired that one of the requirements of Regulation 106 of the India Coal Mines Regulations which stipulates that no more than 5 lbs. of explosives shall be kept in one canister was, owing to a misapprehension, not being observed. Neither the cartridge in the dry state nor the liquid oxygen taken separately is explosive. It is only when the cartridge is soaked in the liquid oxygen that an explosive substance results. Since the liquid oxygen evaporates very quickly the soaking of the cartridges must be done on the spot. This procedure virtually amounts to the completion of the manufacture of the explosive in the mine. I referred the point to the Chief Inspector of Explosives who stated that he did not see any objection to the actual manufacture of the explosive—*i.e.*, the dipping of the cartridges in the liquid oxygen—in the mine. He stated also that the dry cartridge, *i.e.*, the Weberlox cartridge, which had not been soaked with liquid oxygen was not an explosive as defined in Section 4 of the Indian Explosives Act. I concurred in this view and informed users of liquid oxygen explosives accordingly. There is no difficulty in complying with Regulation 106 in respect of the amount of explosives to be kept in one canister as the requirement relates only to soaked cartridges and canisters to hold only 5 lbs. of such cartridges are convenient and ample in size for all ordinary requirements.

It should be clearly understood that, as at present constituted, these liquid oxygen explosives are not "permitted" explosives. On being exploded they produce a large amount of flame and must not be used in situations in which there is any risk from inflammable gas or fine dry coal dust.

HAULAGE.

No. 96.—The Bhalgora Coal Company, Limited's Bhalgora coal mine.

Two loaded tubs were being taken along a tramping level towards a haulage road by two trammers. At a point about 30 feet from the haulage road the tubs were stopped. A small amount of slack was placed on the rails to hold the rear tub and the two trammers pushed the first tub towards the haulage road in order to couple it to the set which was standing there. One of the trammers was pushing the tub with his back while the other was pushing with his head. Suddenly the former realised that the second tub

was approaching them. He jumped aside but before deceased could do so the tub struck him causing injuries to his spine which proved fatal. Accidents due to tubs gravitating on slight gradients are not uncommon. It is a bad practice to hold a tub on a gradient simply by means of placing some slack coal in front of the wheels. In all cases proper sprags should be used for holding the tubs stationary as well as for controlling them on gradients.

No. 101. The Standard Coal Company, Limited's Jharia Khas coal mine.

A set of eight loaded tubs were being lowered down a gradient of 1 in 10 towards a shaft bottom where the coal is raised to the surface. A trolleyman who was authorised to ride on the set was standing on the buffer and the haulage rope at the rear of the tubs. The set was travelling at a high speed when the rope suddenly jerked and the trolleyman was thrown to the ground. He sustained a compound comminuted fracture of both bones of the right leg and died fifteen days later in hospital. It was revealed that the chief reason for allowing men to ride on the set was to enable them to signal quickly in case of derailment. Inspector of Mines, No. 1 Circle, did not consider this to be a sufficient reason for placing a man in a position of some danger and at his request the Agent cancelled all authorisations to ride on tubs.

Riding on tubs should be prohibited as far as possible. It is only in very exceptional cases that it is necessary for haulage men to ride on the set and there should be very strong reasons before authorisations are given for that purpose.

(NON-STATISTICAL.)

SUFFOCATION BY GASES.

No. 9.—Messrs. Apar Collieries Limited's Charanpur coal mine.

This Accident was of a peculiar nature. A seam of coal was on fire and the surface had subsided. The part of the mine under the subsided area had been abandoned for about 8 years. In the surface subsidence, however, there was an opening into the old workings. On the evening of 16th March two goats were noticed to have strayed into the subsidence and to be lying helpless. The owner of the goats went down to retrieve them but he himself collapsed. His wife went down to his rescue and she was also overcome. Three others who went separately to the aid of the owner and his wife became affected by giddiness but managed to scramble back to safety. The owner of the goats and his wife were subsequently recovered by fixing rope to them and pulling them out. The owner of the goats who was rescued first was resuscitated by artificial respiration, but similar efforts were of no use with his wife. This accident shows that gases may emerge from a fire area through openings to the surface and if there is an extensive and considerable depression the gases may lie in the hollow. As a rule, such gases are dissipated by the movement of the air but it is obvious from the accident described that that is not always so. Instructions were issued to the manager to fill in the subsidences so as to

prevent the escape of noxious gases from the fire. He also agreed to the suggestion that the area should be effectively fenced off.

Section IV—Prosecutions and amendments to the Act, Regulations and Rules, and orders made thereunder.

PROSECUTIONS.

During the year judgments in prosecutions were delivered as follows :—

The owner and the manager of Babu Brijlal Lodhi's Piprawali steatite mine were prosecuted for failing to have an inspection book available and for failing to fence a quarry. The owner was fined Rs. 10 and the manager Re. 1.

For similar offences the owner and the manager of Babu Dhandu Lodhi's Chillawali steatite mine were prosecuted. The owner was fined Rs. 10 and the manager Rs. 2.

The owner, who was also manager, of Messrs. R. E. Ramsay and J. Kirkwood's Central Jamehari colliery was prosecuted for employing persons in a mine in which there was only one outlet on work other than that permitted under the regulations; for failing to keep the roof and sides of all working places and travelling roads secure and for failing to keep the top of a quarry properly fenced. He was fined Rs. 30.

The owner and the manager of Babu Parichat Lodhi's Gharwali steatite mine were prosecuted for failing to have an inspection book available; for leaving the loose over-burden above the entrance to a tunnel in an insecure and dangerous condition and for omitting to fence a quarry from the bottom of which tunnels had been driven. The former was fined Rs. 20 and the latter Rs. 5.

The owner and the manager of Babu Gayadin Lodhi's Madartungawali steatite mine were prosecuted for similar offences. The owner was fined Rs. 5 and the manager Re. 1.

The representatives (two) and the manager of Sreejukta Makhanmoyee Gupta's New Pandedih colliery were prosecuted for encroachments on the east and west side barriers of their mine towards collieries belonging to other owners. The case against the manager was withdrawn and the representatives were acquitted.

The owner and the manager of Babu Giridhari Lodhi's Kandrawalli steatite mine were prosecuted for failing to have an inspection book available and for sinking a shaft through an old dump without securing the sides which were in a very dangerous condition. The owner was fined Rs. 5 and the manager Re. 1.

The owners (three) and the manager of Messrs. R. G. Sarkar and Brothers' Hirakun colliery were prosecuted for failing to fence a number of disused galleries; for failing to make correct entries in the attendance register and for employing underground more than the permissible percentage of women. Two of the owners were fined Rs. 50 each, the third having died and the manager was fined Rs. 20.

The contractor, the manager and two overmen of Messrs. Kuardih Coal Company, Limited's Kuardih colliery were prosecuted for failing to dilute and render harmless inflammable gases in the workings of the mine ; for allowing persons to work underground without sufficient lights ; for allowing others to work underground with no lights whatever and for failing to prevent persons from working in places containing inflammable gases. The contractor was fined Rs. 300, the manager Rs. 100, and the overmen Rs. 50 each. The four accused appealed against their conviction but the appeal was dismissed.

An overman, a day shift deputy overman and a night shift deputy of Kurburbaree colliery owned by the Government of India, Railway Department, were prosecuted for violations of Regulation 67 of the Indian Coal Mines Regulations, 1926, and Bye-laws 39, 41, 42 and 44 made under Section 32 of the Indian Mines Act, 1923. As adequate departmental action was taken by the Colliery Superintendent the case was withdrawn.

The owner and the manager of Messrs. Bhurangya Coal Concern's West Bhurangya colliery were prosecuted for keeping the side of an incline cutting in an insecure condition and failing to keep the fencing in other inclines in repair and for not fencing one side of an air-shaft and the manager for also not countersigning the reports of inspections for some time. The owner was fined Rs. 10. The case against the manager was withdrawn.

The manager of the Kalapahari Coal Company, Limited's Damra colliery was prosecuted for failing to keep an old incline fenced as a result of which a fatal accident occurred. He was fined Rs. 200.

The owners (two) of Mr. Saligram Marwari and Madan Gopal Marwari's Suratand colliery were prosecuted for failing to fence properly a discontinued incline and for omitting to fence the entrance to an incline with a structure of a permanent character. They were fined Rs. 12 each.

The owner, who was also manager, of Babu Hira Nand's Kund slate mine was prosecuted for failing to have an inspection book available ; for leaving the loose over-burden above the working places in a dangerous condition and for not maintaining a register of work-persons in accordance with the Rules. He was fined Rs. 20.

The owner and the manager of Babu B. D. Lalla's Selected Peepratand colliery were prosecuted for failing to fence several old inclines and an air-shaft and for failing to provide suitable means of egress at the air-shaft which was used as a second outlet. The owner was fined Rs. 10 and the case against the manager was dropped as he did not appear.

The owners (two) of Messrs. Basanta Kumar Sen and Hari Kumar Sen's Pure Angarpathra colliery were prosecuted for failing to fence the entrances of five discontinued inclines by structures of a permanent character. They were fined Rs. 5 each.

The owner of Messrs. Anjarwala Coal Company's Amtala colliery was prosecuted for failing to submit a copy of the plan of discontinued workings and for failing to keep the openings into the mine fenced with structure of a permanent character. The case was dropped as the accused was in an Indian State and the summons could not be served.

The owner, who was also manager of Babu Motiram Chamar's Padla slate mine was prosecuted for failing to keep an inspection book available; for failing to remove old dump on the side above the working place, and leaving it in a dangerous condition; for undermining the side of a working place and leaving it in a dangerous condition and for not maintaining the register of work-persons in accordance with the Rules. He was fined Rs. 20.

The owner and the manager of Babu Raghunandan Singh's Chandore colliery were prosecuted for allowing the pillars in the discontinued workings of a seam to be robbed in such a way as to lead to the premature collapse of the working; for failing to keep the fencing in certain inclines in repair and for not having the walling round an incline of a sufficient height and for not fencing all the old workings which were not in actual use. The owner was fined Rs. 20, and the manager Rs. 10.

The owners (three) of Messrs. N. P. Brothers' Central Sinidih colliery were prosecuted for failing to submit an accurate plan of the discontinued workings of the colliery; for incompletely fencing a discontinued quarry and for failing to fence the entrance to a discontinued incline by a structure of a permanent nature. They were fined Rs. 5 each.

The owner and the manager of Babu Bhata Lodhi's Bamoorwali steatite mine were prosecuted for failing to keep an inspection book available; for sinking three shafts through old dumps without securing the sides which were in a dangerous condition and for failing to fence the shafts. The owner was fined Rs. 5 and the manager Re. 1.

The owner and manager of Babu Ram Nath Lodhi's Bhairanwali steatite mine were prosecuted for failing to keep an inspection book available and for leaving the old overburden on the sides of a quarry in a very dangerous condition. The owner was fined Rs. 5 and the manager Re. 1.

For similar offences the owners and managers of Babu Din Dayal Brahmin's and Babu Jagmohan Lodhi's Bazarwali and Chillawali steatite mines, respectively, were prosecuted. In the former case the owner was fined Rs. 5 and the manager Re. 1, and in the latter the owner was fined Rs. 7 and the manager Re. 1.

The owner of the Birsingpur Coal Company's Birsingpur colliery was prosecuted for failure to submit a plan of the discontinued workings of the colliery. The case was withdrawn as the plan was subsequently submitted.

For similar offences the manager, who is also the managing director of the Pure Central Collieries Limited's Bamangara colliery and the owners (two) of East Bengal Coal Company's Gopinathpur colliery were prosecuted. In the former case the managing director was fined Rs. 30, and in the latter the case was dropped as the plan was subsequently submitted.

Ten prosecutions were instituted for failure to submit annual returns within the prescribed date. In seven cases fines aggregating Rs. 46 were imposed.

Information was received of the following prosecutions instituted by mine officials against subordinate staff :—

A miner of the new Birbhum Coal Company, Limited's Chinchuria colliery was prosecuted for passing through a fence into a goafed area and cutting coal from the goafed side of a pillar. He was fined Rs. 20.

A trammer was prosecuted for riding on a train of loaded tubs which was being hauled up an underground hauling plane. He was fined Rs. 15.

Information was also received of the following prosecutions instituted by the police Authorities :—

The manager and a licensed gunpowder manufacturer of Messrs. Burn and Company's Sunkerpore colliery were prosecuted under Section 286-304-A of the Indian Penal Code the former for allowing the manager to dry gunpowder on top of the boiler of his colliery and thereby committing a rash and negligent act and the latter for drying the gunpowder on the boiler, and thereby acting in a rash and negligent manner with regard to an explosive substance. Their negligence resulted in the death of a woman. The manager was fined Rs. 350 and the gunpowder manufacturer was sentenced to nine months' rigorous imprisonment and a fine of Rs. 200.

AMENDMENTS TO THE INDIAN MINES ACT AND TO THE REGULATIONS, RULES
AND BYE-LAWS MADE UNDER THE ACT.

In Notification No. M-1265, dated the 20th April 1933, issued by the Government of India, Department of Industries and Labour, the Governor General in Council was pleased to appoint certain medical and health officers in the Madras, Bengal and Bombay Presidencies and in Bihar and Orissa, Punjab, Burma, Central Provinces and Assam to be *ex-officio* Inspectors of Mines. The notification is reproduced in Appendix IV, statement No. 3.

In Notification No. 271-1, dated the 16th May 1933, issued by the Government of India, Foreign and Political Department, the Governor General in Council was pleased to appoint the Civil Surgeon Yeotmal, to be *ex-officio* Inspector of Mines.

In Notification No. M-1265, dated the 25th April 1933, issued by the Government of India, in the Department of Industries and Labour, returns are now required of the number of persons actually at work and also of persons who should ordinarily have been at work but were absent on a selected day in February of each year. The notification is reproduced in Appendix IV, statement No. 4.

In Notification No. M-1055, dated the 22nd June 1933, issued by the Government of India, Department of Industries and Labour, the approval of the Governor General in Council was accorded to certain further amendments in the Indian Coal Mines Regulations, 1926. The notification is reproduced in Appendix IV, statement No. 5.

In Notification No. M-1051, dated the 25th November 1933, issued by the Government of India, Department of Industries and Labour, the approval of the Governor General in Council was accorded to the amendment in the schedule to the notification of the Government of India in the Department of

Industries and Labour No. M-665, dated the 16th April 1930. The notification is reproduced in Appendix IV, statement No. 6.

In Notifications Nos. M-1055 (1) and (2), dated the 20th December 1933, the Government of India, Department of Industries and Labour, published the Indian Oil Mines Regulations, 1933, and the Lanywa Oil Mines Regulations 1933, respectively. Consequential amendments to the Indian Metalliferous Mines Regulations, 1926, and to the Schedule to the Notification of the Government of India Department of Industries and Labour, No. M-665, dated the 16th April 1930, were published in Government of India Department of Industries and Labour, Notifications Nos. M-1055(3) and M-1055(4), dated the 20th December 1933. Notifications Nos. M-1055(3) and M-1055(4) are reproduced in Appendix IV, statements Nos. 7 and 8 respectively. Notifications Nos. M-1055(1) and M-1055(2) are not reproduced but may be purchased from the Manager of Publications, Civil Lines Delhi.

In Notifications Nos. 7018-Com. and 4889-VII, M-13-Com., dated the 22nd and 4th December, respectively, the Governments of Bengal and of Bihar and Orissa, published certain amendments to the rules for coal mines published with Bengal and Bihar and Orissa Notifications Nos. 4788-Com. and 2608-VII-M-2-Com., dated the 29th August and 8th September 1934, respectively. The amendments made by both Governments are the same. Bengal Government Notification is reproduced in Appendix IV, statement No. 9.

By the end of the year bye-laws under Section 32 of the Act had been established at five hundred and fifty eight coal mines and nine mines other than coal.

SECTION V.—GENERAL REMARKS.

UNDERGROUND FIRES AND COLLAPSES.

The underground fire in No. 11-12 combined seam at Seth Khora Ramji's Khas Jharia colliery to which reference was made in last year's report continued to be active and to extend its depredations during the year. The fire has now extended into three neighbouring collieries. As a result of the extension of the fire it was necessary to close a branch of the East Indian Railway from the Jharia-Fathardih main line. The branch served several collieries. It is hoped that with a slight diversion of the branch line where it joins the main line it may be possible later to re-open the branch.

I referred in my last report to the measures to be taken to safeguard the town of Jharia. These have now been completed. The main precaution consisted in the erection of substantial brick walls in all roads, streets and openings so as to isolate the adjacent occupied buildings from the area endangered by the fire. The cost of erecting the walls was borne partly by the District Board and partly by local subscriptions. By means of these walls the dangerous area has now been effectively enclosed.

Another precaution consisted in the demolition of, and in particular the removal of inflammable material such as doors windows and other timber parts from the houses within the dangerous area. The limits of the fire area on the sides remote from the town are being kept securely fenced. In the

meantime pressure dams are in course of erection in the galleries of one of the threatened collieries. When these are completed it is proposed to impound water in the workings behind the dams so as to provide a seal which will limit the spread of the fire and may constitute a means of promoting its extinction.

Another fire which has caused considerable anxiety and trouble to this department, the East Indian Railway and the Jharia Water Board occurred early in the year. The area involved is a section of old workings in No. 13 seam, Jharia, belonging to Messrs. Kusunda Nayadee Collieries Company. The workings had been abandoned for some years after a considerable proportion of the seam had been mined and there were a number of subsidences. Many small pillars, and underneath the Damuda Branch of the East Indian Railway a number of large pillars, had, however, been left unworked. The seam outcrops on the north side of the railway and there the coal had been quarried, leaving a number of pillars of coal exposed. Nos. 11 and 12 seams in the same area had been sub-leased to another owner and the coal mined from these seams was being converted into soft coke. The place of manufacture was on the edge of the quarry and it appeared to have been the custom to dispose of rejections in a hot state over the face of the quarry. Eventually the pillars of coal in the quarry caught fire and in a short time the whole of the face of the quarry was a raging furnace. The fire could not be controlled and eventually traversed the galleries under the railway and made its appearance in the subsidences on the south side of the railway. The railway was endangered over a considerable length and had to be closed. Moreover a water main belonging to the Jharia Water Board which supplies water to a large number of collieries and which runs alongside and close to the railway was also endangered necessitating steps being taken to provide a diversion of the water main at a considerable cost.

The occurrence was an unusual one as most underground fires are due to spontaneous heating, whereas this fire had been caused accidentally.

In a circular letter, I drew the attention of all manufacturers of soft coke to the occurrence and asked them to examine the position in which soft coke was being manufactured at their collieries and to satisfy themselves that the position chosen and the method of disposing of rejections of hot material was such that no risk of setting fire to coal was involved.

UNDERGROUND LIGHTING.

In last year's report I referred to the importance of good lighting in the underground parts of mines, particularly at the bottoms of shafts, on main haulage roads, and in depillaring areas. The use of electricity for lighting purposes is steadily increasing in coal mines and in the more important metalliferous mines.

During the year under review special semi-portable electric lamps giving about 48 candle-power have been introduced into the mines belonging to the Assam Railways and Trading Company, Limited. The seams worked by this company are in general thick and highly inclined. A special system of working known as the "chamber" system is practised. The chambers are known locally as "openings". In these openings good lighting is very

essential. The special semi-portable lamp to which I refer carried a 6 volt 80 ampere-hour battery capable of supplying a 48 candle power for the duration of a full shift. The battery is carried in an aluminium container with flange protection. The making and breaking of the lamp circuit is done inside the container box so that there is no risk of open sparking. The lamp is fitted in an aluminium casting with a screw-on front and is supplied with a parabolic reflector and a stout anti-dazzle glass. The lamp stand consists of a heavy cast iron base and the lamp is so suspended that it can be tilted into any required position. It can also be rotated and locked in any convenient position by means of locking screws.

Three of these lamps are now in use, one at each of the chief collieries of the company. The Colliery Superintendent reports that the use of these high powered lights has greatly increased the safety of work in large "openings" as it is possible not only to work with greater freedom and confidence but a more detailed examination of the roof and sides can be made.

It should be pointed out, however, that the use of electric lights in places where there may be a risk of accumulations of inflammable gas, does not preclude the necessity for regular and frequent inspections for the presence of inflammable gas by means of a flame-type safety lamp. When inflammable gas is detected the electric lights should be withdrawn or switched off until the accumulation has been removed.

MEDICAL TREATMENT OF MEN BURNED IN COLLIERY EXPLOSIONS.

It is pointed out in a report recently issued by the Department of Mines in Great Britain that in accidents due to explosions and ignitions of inflammable gas or coal dust workmen who have been rescued alive or have themselves been able to walk out of the mine frequently die afterwards from the effects of the burns they have received. This also often happens in India. The possibility of the recovery of persons who have been burned depends to a very great extent on the care and nature of the treatment given to them after the accident.

The report mentioned is a most valuable document and deals succinctly with the nature of burns, the effect of shock, the treatment that should be given immediately at the mine, and the subsequent treatment to be given in hospital. Special stress is laid on the method of treatment with tannic acid which has proved so successful in the treatment of persons suffering from extensive burns. An instance of the efficacy of the method is that in connection with the explosion at Aldih colliery described on page 32 of this report. In all, nine persons were severely burned but as a result of the care and attention they received in hospital and in particular by reason of the application of the tannic acid method of treatment six of them recovered. It is practically certain that if the tannic acid treatment had not been used the number who died would have been much greater.

The report also gives details of hospital organisation and equipment, anaesthesia and after-care of patients.

I circulated particulars of the report amongst all owners and managers of gassy mines and recommended the purchase of copies of the report.

Messrs. W. Newman & Sons, Calcutta, kindly agreed to maintain a stock of copies of the report for the convenience of mineowners.

HEALTH AND SANITATION.

The Asansol Mines Board of Health held five special and ten ordinary meetings during the year. Dr. L. Sen was Chief Sanitary Officer throughout the year. The general health of the Mining Settlement was satisfactory, the death rate being 18·2 per thousand as compared with 18·31 in 1932. There was a decline in the infant mortality rate from 143·21 per thousand births in 1932 to 136·6 during the year. There was no epidemic of cholera during the year, this being the second year in succession showing absence of any epidemic outbreak. There were, however, 89 isolated cases with 29 deaths as against 184 cases and 65 deaths in the previous year. The number of anti-cholera inoculations performed was 22 493 against 48,862 in 1932. There were 247 attacks of small-pox with 33 deaths, against 254 attacks with 36 deaths in 1932. Isolation and segregation and also quarantine were enforced under the Small-pox Regulations. The Board's staff was supported by the colliery doctors who undertook re-vaccinations among miners and by temporary vaccinators engaged for the purpose. Altogether 132,558 vaccinations were performed during the year as compared with 77,181 during the previous year. About one-third of the total population of the Mining Settlement was protected by this measure. The maternity and infant welfare scheme was in charge of a Lady Superintendent. There are three welfare centres each in charge of a trained health visitor and three midwives for free maternity service in the coalfield. Health and Baby welfare celebrations were organised in seven different areas by the Asansol Health and Baby Welfare Society in collaboration with the Mines Board of Health. The leprosy department was reorganised with two leprosy officers each in charge of two clinics. Two more clinics were managed by a group of colliery doctors and subsidised by the Board. The anti-leprosy campaign received a stimulus by the constitution of a Leprosy Relief Association consisting of 12 divisional organisations with a central Leprosy Board representing various interests in the coalfield. Health propaganda was in charge of an officer who toured the Mining Settlement throughout the year and delivered lantern lectures in the collieries and villages. The malaria department was reconstituted with one whole time malaria officer. The health of school children was supervised by a school medical officer while the sanitary staff delivered a course of lectures on health subjects in the primary schools.

During the year the Jharia Mines Board of Health held thirteen ordinary, six special meetings and seven joint meetings with the Jharia Water Board. Major C. S. Ryles, Medical Officer of Health, held charge throughout the year. The estimated population of the Settlement was 533,504 persons. The death rate was 13·34 per 1,000 as compared with 15·68 in the previous year. There were 119 cases of suspected cholera and 29 deaths as compared with 130 cases and 33 deaths in the previous year. On the collieries the number of deaths from cholera was 7 as compared with 11 in the previous year. There were 960 cases of suspected small-pox with 79 deaths as compared with 772 cases with 20 deaths in the previous year. Many samples of food were analysed in the Board's laboratory and prosecutions were

ordered in all cases of adulteration. There was no improvement in respect of housing during the year; owing to the depressed state of the coal trade very little new construction work was entered upon but the condition of the existing accommodation was maintained. The Board's maternity and child welfare scheme was also maintained up to the usual standard. There was considerable activity in anti-leprosy work throughout the Jharia coalfield.

During the year provincial and district medical officers of health throughout British India were appointed as Inspectors of Mines. These appointments will undoubtedly prove of great assistance to this department in the work of raising the standard of health and sanitation in the various mining districts. Already I have received a number of reports and have taken action on them.

During the year I accompanied the Medical Officer of Health of the Jharia Mines Board of Health in inspections of the underground sanitary arrangements and conditions of two large collieries in the Jharia coalfields. Several valuable suggestions for improvement were made by the Medical Officer of Health. One of the collieries visited was Mudidih colliery. A reference was made in the Annual Report for 1931 to the use of underground latrines at that colliery. I wish to mention also that the management of the colliery have arranged a stand-pipe at one of the main underground levels providing a supply of filtered water from the water system of the Jharia Water Board. This is undoubtedly an excellent idea and I should like to see it adopted at many more collieries in the Jharia coalfield.

Statistics of rainfall in the Eastern Coalfields have been recorded as follows :—

	Rainfall in inches.	
	1933.	1932.
Jharia Coalfield—		
Joaigora	55·51	45·02
Topchanchi	57·70	52·07
Raniganj Coalfield—		
Asansol	54·11	44·26
Giridih Coalfield—		
Giridih	80·06	58·60

AMBULANCE WORK.

Classes in First-Aid were held at eleven centres in the Jharia coalfield. The number of students attending was 166 and 96 certificates were awarded. In the Raniganj coalfield 177 students attended at eight centres and 123 obtained First-Aid certificates. These classes are organised by Inspectors of Mines, Nos. 1 and 2 Circles.

Instruction in First-Aid was also given in mining centres of importance in other parts of India.

MINING BOARDS IN BENGAL, BIHAR AND ORISSA AND THE CENTRAL PROVINCES.

The Bengal Mining Board held one meeting during the year. Among the subjects discussed at the meeting and by correspondence were :—(a) amendments to the rules made by the Government of Bengal and published under Notification No. 4788-Com., dated the 29th August 1924 ; (b) draft amendments to the rules made by the Government of Bengal and published under Notification No. 3426-Com., dated the 3rd July 1924 ; and (c) proposed further amendments to the Indian Coal Mines and Metalliferous Mines Regulations, 1926. The non-official members of the Board were Messrs. P. S. Keelan C. I. E., A. L. Ojha and Rai Sahib Upendra Nath Mandal.

The Bihar and Orissa Mining Board did not meet during the year. Among the subjects dealt with by correspondence were :— (a) proposed legislation to regulate the periods of payment of wages to workmen in mines and (b) proposed amendments to the Indian Coal Mines and Metalliferous Mines Regulations, 1926. The non-official members of the Board were Messrs. J. B. Argyle, A. L. Ojha and J. Mackie.

The non-official members of the Mining Board for mines other than coal mines in Bihar and Orissa were Messrs. G. A. Young and F. G. Percival.

The Central Provinces Mining Board held no meeting during the year. The subjects dealt with by correspondence were :— (a) proposed amendment to the Central Provinces Regulations and Inspection of Mines Rules, 1924 ; (b) proposed restriction of the employment of women in quarries and open workings and (c) draft amendments to the Indian Coal Mines and Metalliferous Mines Regulations, 1926. The non-official members of the Board were Messrs. R. S. Davies, L. H. Bartlett, Rai Bahadur Mathura Prasad and Rai Sahib Radeshiam Wahi.

BOARD OF EXAMINERS.

Five meetings of the Board of Examiners were held during the year. The non-official members of the Board were Messrs. J. Mackie, N. N. Sarkar and J. B. Wardlaw. The local examiners appointed were Messrs. J. G. Cunningham and L. Millar for coal mine managers' first class certificates. Messrs. W. B. Penman and S. M. Chatterjee for coal mine managers' second class certificates and Mr. A. Mack for the examination for coal mine surveyors' certificates. Mr. N. Barraclough, Inspector of Mines, acted as Secretary for all the examinations.

Two first class certificates of competency to manage a coal mine and one coal mine surveyors' certificate were granted in lieu of British certificates of the same class. At the examinations for coal mine managers' certificates held at Dhanbad in February and March, 59 candidates sat for first class certificates and 79 for second class certificates. Four certificates of the first class and eighteen of the second class were granted. At the examination for coal mine surveyors' certificates of competency held at Dhanbad in November there were thirty candidates of whom ten were successful.

Two hundred and four persons were examined for coal mine sirdars' certificates of competency and 162 certificates were granted. Out of 261

holders of sirdars' certificates examined in gas testing 161 were successful and their certificates were duly endorsed to that effect. 359 holders of sirdars' certificates appeared for re-examination in eyesight and hearing, 354 were successful and their certificates were duly endorsed. Under Coal Mines Regulation 49 the certificates of six sirdars were suspended for periods varying from three months to six months. During the year 6 duplicate sirdars' certificates and 49 duplicate discs were issued.

MINING EDUCATION.

At the Indian School of Mines, Dhanbad, the number of students on the roll at the commencement of the session 1932-33 was 50, of whom 14 were in the first year, 12 in the second year, 14 in the third year and 10 in the fourth year. At the commencement of the session 1933-34 there were 51 students on the roll. The results of the Diploma and Certificate examinations held in July 1933 were as follows :—

Diploma or Certificate.	No. of candidates.	No. of successful candidates.
Diploma of Associateship in Geology.	1	1 (Class I) .
Diploma of Associateship in Mining Engineering.	9	8 (5 in Class I, 3 in Class II). .
Certificate in Geology.	3	3
Certificate in Coal Mining.	9	7
Certificate in Metal Mining.	2	2

The mine surveying camp was pitched at Godhur colliery during the month of November 1933 and 32 students of the second, third and fourth years and one special student were in attendance. Visits and tours of inspection were paid to the mica mines of Kodarma, the copper and iron mines of Singhbhum and to many local collieries and places of geological interest in the neighbourhood of the School. In addition the senior geology students were taken to places of geological importance in the Punjab and other places. Four former students obtained the first class coal mine managers' certificate and eleven obtained the second class coal mine managers' certificate at the examinations held by the Board of Examiners in February 1933.

A special course of lectures on Engineering subjects with special application to mines was given at Dhanbad and Asansol by Professor Sharpley. The lectures were well attended by mine managers and colliery engineers. Research work into improvements in the methods of manufacture of soft coke was carried out at the School on behalf of the Indian Soft Coke Cess Committee.

The total number of students who have successfully completed the courses at the School up to date is as follows :—

Diploma of Associateship in Mining Engineering	56
Diploma of Associateship in Geology	19
Certificates in Coal Mining, Metal Mining or Geology	40
Total	115

Nearly all passed students are in employment.

In the Department of Mining and Metallurgy at the Benares Hindu University, there were 74 students on roll during the session 1933-34. Of these, 27 were in the first year, 17 in the second year, 6 in the third year mining, 11 in the third year metallurgy, 4 in the fourth (final) year mining, and 9 in the fourth (final) year metallurgy classes. Five students passed the Final examination for the degree of B.Sc. in Mining and 8 in Metallurgy. Up to date the total number of mining graduates is 18. During the year visits were paid to several coal mines in the Jharia, Raniganj, Rewa and the Central Provinces coalfields, copper mines and stone quarries and to iron, steel and copper works, coke works, refractory material works, etc. The geological camp was held in the Pench Valley coalfield of the Central Provinces.

The mining Education Advisory Board continued to control the three year courses of evening instruction for mining students instituted by the Governments of Bengal and Bihar and Orissa. The lecture centres were at Raniganj and Sitarampur in the Raniganj coalfield and at Jharia and Sijua in the Jharia coalfield. During the session 1932-33 and total number of students enrolled was 85 of whom 28 attended the classes of the third stage. Of these students, 21 appeared at the final examination and 16 were successful. Courses of ten lectures were delivered in Hindi to overmen and sirdars at seven centres in the Jharia coalfield. Similar lectures in Bengali were delivered at fifteen centres in the Raniganj coalfield. At the Jharia and Sitarampur lecture halls special demonstrations in gas testing were given by the Mining lecturers. From August to November 1933 special classes in Mine Surveying preparatory for the examination for the mine surveyors' certificate of competency were held in the Jharia coalfield.

The evening mining classes in Bengal were temporarily closed with effect from 1st April 1933. The general vernacular classes in coal mining for sirdars and the vernacular classes in gas testing were, however, retained.

Mining instruction in the Pench Valley coalfield of the Central Provinces, which, after being given for a few years, ceased in 1928 owing to lack of support by students was resumed in 1933. A grant was given by the Local Government and a committee of management formed. There was a total enrolment of 28 students and the attendance was gratifying. It is hoped that the classes will continue to be successful.

SCIENTIFIC AND TECHNICAL ASSOCIATIONS.

(a) *Mining and Geological Institute of India.*

The total membership, including subscribers of the Mining and Geological Institute of India at the end of the financial year of the Institute, *i.e.*, on the 31st October 1933, was 326. In addition to the annual meeting, four ordinary general meetings were held for the reading and discussion of papers. Illustrated lantern lectures were delivered by Dr. J. A. Dunn on "The Brown Coal Industry of Victoria" and on "The Mining Industry of Australia"; by Lieut.-Col. M. Stagg on "The Working of Metals in the Mint"; and by Mr. P. I. Keith-Murray on "Radio Communication applied

to Mines". Several excursions were made to engineering works and power stations.

Four parts of the *Transactions* were published. The Institute gold medal was awarded to Mr. W. H. Bates for his paper entitled "Indian Earths, Pottery Clays and Refractory Materials"; the Government of India prize and the Institute silver medal were awarded to Mr. J. Brown for his paper on a "Proposal for working a Highly Inclined Thick Seam of Coal in India with special reference to the Hydraulic Transportation of Coal"; the Institute bronze medal was not awarded. The Pickering medal presented by the Institute for the best student in mining at the Indian School of Mines was awarded to Mr. K. C. Maithal and the Hayden medal for the best student in geology was awarded to Mr. K. B. Swamy. Mr. J. Mackie continued on the Governing Body of the Indian School of Mines. Mr. B. Wilson Haigh was appointed to serve on the Council of the Institute of Fuel, London and Mr. P. Evans represented the Institute at the World Petroleum Congress held in London in July 1933.

From the large amount of information and the useful data collected by the Subsidence Committee it is hoped to issue an interim report in the near future.

(b) *The National Association of Colliery Managers, Indian Branch.*

The number of members of the National Association of the Colliery Managers, Indian Branch, at the beginning of the year was 97. Some of the subjects dealt with by the Council during the year were:—(1) the education of subordinate staff in mines; (2) the final report of the Coal Dust Committee; (3) roads in the coalfield; (4) the provision of an overbridge at Kalipahari Railway crossing; (5) unemployment of colliery managers; (6) the giving of evidence at enquiries into serious or fatal accidents; (7) proposed amendments to the Regulations under the Indian Mines Act; (8) the position of managers with regard to the requirements of the Explosives Act. Mr. J. T. Caldwell represented the Association on the Jharia Mines Board of Health and Mr. W. McDonald on the Asansol Mines Board of Health. Mr. B. Starks Field on the Subsidence Committee, Mr. T. A. Wetherell and Mr. J. Brook on the Railways and Collieries Advisory Board. The Association presented an address of welcome to His Excellency Sir James Sifton, the Governor of Bihar and Orissa on the occasion of his visit to the Jharia coalfield, and in conjunction with the Indian Mining Association had the honour of entertaining His Excellency to dinner at the Jharia Club.

(c) *The Indian Mine Managers Association.*

The membership of the Indian Mine Managers Association at the end of the year was 232. Among the subjects dealt with by the council were:—(1) amendment of Indian Coal Mines Regulations, 1926; (2) a bill to regulate the payment of wages to certain classes of persons employed in industry; (3) recommendation of Royal Commission on Labour regarding arrests and imprisonment of labourers for debts; (4) formation of Leprosy relief association in Asansol Mining Settlement. Messrs. J. K. Dholakia and B. K. Bose

represented the Association on the Jharia Mines Board of Health ; Mr. K. K. Baksi on the Society for prevention of cruelty towards animals ; Mr. N. Ghose on the Leprosy Relief Association, Asansol Mining Settlement ; and Mr. M. M. Mukherjee acted as Chairman of the local Railways and Collieries Advisory Board (till 7th August 1933). An address of welcome was given to His Excellency the Governor of Bihar and Orissa during his visit to the Jharia coalfield.

(d) *The Railways and Collieries Advisory Board.*

The Board had three meetings during the year when various matters dealing with Railway and Colliery interests in the Jharia and Raniganj coalfields were discussed. Mr. M. M. Mukherjee, President of the Indian Mine Managers Association, acted as Chairman of the Board up to 7th August 1933 when Mr. T. A. Wetherell, President of the National Association of Colliery Managers (Indian Branch) took over charge from him.

LABOUR ASSOCIATIONS.

(a) *The Indian Colliery Labour Union.*

The Union is registered under the Indian Trade Union Act, 1926. Its headquarters are at Jharia, in Bihar and Orissa. The Union is stated to have had 7,169 members on its roll during the year under review. The members are mainly miners, skilled and unskilled manual labourers, and clerical workers. The rate of subscription varies from one anna to four annas per month. The work of the Union is stated to have been carried out in close association with the Tata's Collieries Labour Association, Jamadoba, Jharia Coalfield.

(b) *The Tata's Collieries Labour Association.*

This association is also a registered Trade Union. Its activities are mainly concerned with workmen employed at Messrs. The Tata Iron and Steel Company's collieries. It is stated that it has included in its activities during the year a scheme of lectures on maternity work, hygiene and sanitation. The membership numbered 1,020 being chiefly composed of miners and manual workers. The rate of subscription varies from one anna to Rs. 1-8-0 per month.

(c) *The Indian Miners' Association.*

This association was formed in March 1933 and is registered under the Indian Trade Union Act. Its headquarters are at Jharia, Bihar and Orissa, and it is stated to be affiliated to the National Trades Union Federation whose head office is in Bombay. The membership is stated to be about 2,000, about 1,600 of whom are said to be miners and the remainder skilled manual workmen and clerical staff. The rates of subscription are from one anna to four annas per month.

VISIT OF HIS EXCELLENCY THE GOVERNOR OF BIHAR AND ORISSA TO THE
JHARIA COALFIELD.

In February His Excellency Sir James Sifton, K.C.S.I., K.C.I.E., I.C.S., the Governor of Bihar and Orissa visited the Jharia coalfield. An inspection of underground workings was made at Kustore colliery and surface inspections were made at Bagdigi and Kirkend collieries. His Excellency inspected the Bhowra coke plant and the power station. During the course of His Excellency's stay in the Jharia coalfield visits were also paid to the Charitable Hospital and the Indian School of Mines at Dhanbad, the Kumardhubi Engineering Works and the Topchanchi reservoir. I accompanied His Excellency on most of his visits.

Other important visitors to the Jharia coalfield were as follows :—

Mr. C. W. H. Weaver, Chief of Section of the Diplomatic Division of the International Labour Office, accompanied by Dr. P. P. Pillai, Director of the Indian Branch of the International Labour Office, visited the Jharia coalfield in February with the object of gaining some personal contact with officials and representatives of industry and labour. During their stay in the coalfield they interviewed the Chairman and the Medical Officer of Health of the Jharia Mines Board of Health and also, accompanied by me, made underground inspections of Kustore and Kirkend collieries.

The Hon'ble Khan Bahadur Saiyed Muhammed Hussain, The Hon'ble Minister of Education, Bihar and Orissa, visited the Jharia Coalfield in October and surface inspections of Kankanee and Bagdigi collieries were made. Visits were also paid to the Indian School of Mines at Dhanbad, the Kumardhubi Engineering Works and the Topchanchi reservoir.

OFFICIAL DUTIES, 1933.

Dr. D. Penman was Chief Inspector of Mines throughout the year and as a temporary measure he continued to hold charge of the post of Principal of the Indian School of Mines.

Mr. J. H. Lang held charge of No. 2 Circle from 1st January to 14th October and was deputed to Burma until the end of the year.

Mr. W. Kirby held charge of No. 1 Circle throughout the year.

Mr. N. Barraclough was Inspector of Mines without circle from 1st January to 1st June and again from 30th September to 14th October. He held charge of No. 2 Circle from 15th October to the end of the year. He was on leave from 2nd June to 22nd September. He was permitted to affix the Puja holidays and resumed duty on the 30th September.

Mr. H. M. Mitra was Electric Inspector throughout the year.

Mr. G. S. Cameron, Mr. N. G. Chatterjee, Mr. H. K. Chatterjee, Junior Inspectors, were on duty throughout the year.

Mr. J. F. Waters, Junior Inspector, was on duty from 1st January to 10th August. He was on leave from 11th August to 3rd December and on the expiry of his leave he was permitted to resign.

Mr. A. Young, Junior Inspector, was on leave from 21st April to 13th October.

The number of coal mines worked during the year was 501 which is 14 less than in the previous year. The number of metalliferous (including stone, etc.) mines at work was 923 as compared with 766 in 1932.

During the year 931 mines were inspected, many of them being inspected several times; 2,774 separate inspections were made. The cause and circumstances of nearly all the fatal accidents and serious accidents of importance, and all complaints of breaches of regulations and rules were investigated. Many inspections were made at the invitation of mine owners, superintendents or managers desirous of obtaining advice on safety matters. In the major coalfields a large proportion of the time of the Inspectors is occupied in investigating cases of actual or threatened damage to dwelling houses and roads by reason of the underground working of coal mines, and in dealing with underground fires.

Orders were issued as follows :—

Section, Regulation or Rule.	Number of Order.
Under sections 19 (1) and 19 (2)	10
Under Coal Mines Regulation 23	6
Under Coal Mines Regulation 68	1
Under Rule 6 of the rules made by the Government of Bihar and Orissa	22
Under Rule 6 of the rules made by the Government of Burma	29
Under Rules 26, 27 and 28 of the rules made by the Government of the Central Provinces	10
Under Rule 14-A of the rules made by the Governments of Bengal and Bihar and Orissa	12
Under the Indian Electricity Rules, 1932	1 (This order was issued by the Government of the Punjab).

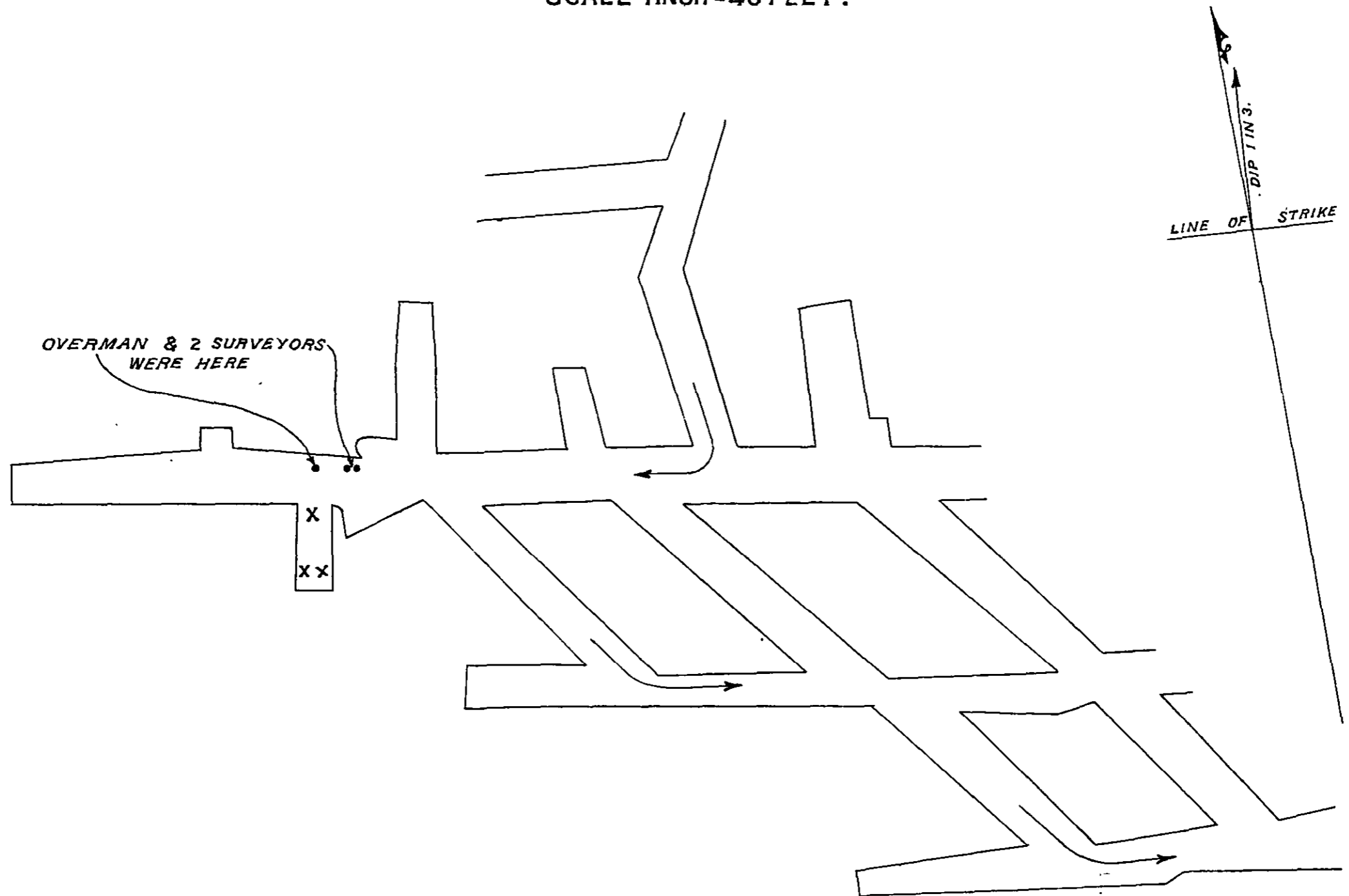
Exemptions, partial or complete, and permissions were granted as follows :—

Regulation.	Number of cases.
Under Coal Mines Regulation 15 (1)	12
Under Coal Mines Regulation 88	1
Under Coal Mines Regulation 106	1
Under Coal Mines Regulation 116	1
Under Coal Mines Regulation 123	2
Under Metalliferous Mines Regulation 64 (1)	1
Under Metalliferous Mines Regulation 74	2

Information was received of thirteen underground fires and one on the surface; four subsidences caused by collapse of underground working; six ignitions of inflammable gas and one irruption of water.

The number of original cases under the Land Acquisition (Mines) Act, 1885, at the end of 1933 stood at 675, twenty-two of which were cases dealt with during the year. There were thirteen applications for modifications of restrictions and three complaints of violations of restrictions, all of which

PLAN ILLUSTRATING REPORT ON,
FATAL ACCIDENT BY IGNITION OF FIRE DAMP
AT
THE TATA IRON & STEEL Co LTD'S JAMADOBA MINE.
SCALE 1INCH=40 FEET.



NOTE:-
POSITION OF DECEASED PERSONS SHOWN THUS.....XXX.

were dealt with. The Act applies to Bengal and Bihar and Orissa only. In other provinces where Government owns the minerals. Local Governments were advised as to the restrictions necessary in cases where mineowners sought permission to work minerals beneath railways roads villages. etc.

I have the honour to be,

SIR,

Your most obedient servant,

D. PENMAN,

Chief Inspector of Mines in India.

STATISTICS OF MINES

Table
Number of workers and output of minerals during the

Province.	District and Mineral field.	Total Output.	Average number of							Total Males and Females.
			Underground.							
			Males.						Females.	
			Overmen and Sidars.	Coal-cutters.	Loaders.	Other skilled labour.	Other unskilled labour.	Total Males.		
									CO	
Assam	Lakhimpur, Makum coalfield	Tons. 164,176	69	188	224	218	418	1,112	...	1,112
	Naga Hills, Nazira „	37,624	17	40	21	39	109	220	...	220
	Sibsagar coalfield	336	1	5	3	2	..	11	...	11
	Total	192,036	87	233	248	248	537	1,343	...	1,343
Baluchistan	Quetta-Pishin, Sor Range coalfield.	4,705	11	31	46	1	...	70	...	70
	Sitj, Khest coalfield	4,376	7	35	54	4	3	108	...	103
	Total	9,141	18	56	100	5	3	182	...	182
Bengal	Bankura	8,748	5	49	22	6	15	97	10	107
	Birbhum	754	2	4	3	...	...	9	1	10
	Burdwan	5,081,687	633	13,502	5,024	2,688	4,738	26,875	4,540	31,415
	Total	5,091,189	640	13,645	5,049	2,644	4,803	26,981	4,551	31,532
Bihar and Orissa.	Manbhum— Raniganj coalfield (part of)	493,797	68	1,445	375	271	588	2,747	471	3,218
	Jharia „	7,961,225	936	16,504	7,665	3,686	5,425	34,418	5,087	40,105
	Hazaribagh— Jharia coalfield (part of)	53,724	0	139	67	17	10	251	41	292
	Bokaro „	1,304,864	44	1,064	470	140	428	2,155	206	2,361
	Giridih „	635,924	128	3,860	804	263	813	5,967	621	6,588
	Karanpura „	342,685	15	590	33	42	56	744	145	850
	Ranchi— Karanpura coalfield (part of)	1,191	1	5	...	...	...	6	...	6
	Sambalpur— Hingir Rampur coalfield	22,036	2	44	52	0	7	114	11	126
	Carried over	10,814,440	1,203	23,000	9,794	4,430	7,336	46,402	7,182	54,541

DIX I.

AND MINERALS.

No. I.

year 1933 at mines under the Indian Mines Act.

persons employed daily in and about the mines.

Overmen and Birdars.	Open workings.							Total Underground and Open workings.	Surface.							Grand Total.
	Males.						Total Males and Females.		Males.				Total Males and Females.			
	Coal-cutters.	Loaders.	Other skilled labour.	Other unskilled labour.	Total Males.	Females.			Clerical and supervising staff.	Skilled labour.	Unskilled labour.	Total Males.		Females.		
															Total Males and Females.	
A.L.																
...	...	...	...	...	...	...	...	1,113	23	91	266	379	85	404	1,670
..	...	...	...	...	...	...	...	230	14	31	86	131	1	132	352
..	...	...	...	...	...	...	...	11	...	...	38	38	1	39	50
...	...	...	...	...	...	...	...	1,843	36	122	390	548	87	635	1,978
...	...	...	...	...	...	...	...	79	1	5	...	6	...	6	35
..	...	...	...	...	...	...	...	163	...	2	...	2	...	2	105
...	...	...	...	...	...	...	...	182	1	7	...	8	...	8	190
4	10	7	1	5	25	2	27	134	7	13	12	33	8	40	174	
...	...	...	...	...	...	...	...	10	1	1	3	5	1	6	16
8	115	11	35	201	370	268	638	32,053	1,164	2,619	4,916	8,719	2,689	11,408	43,461	
10	135	18	36	206	305	270	665	32,197	1,192	3,633	4,931	8,756	2,698	11,454	43,651	
5	34	3	6	11	59	32	91	3,309	99	241	438	778	418	1,196	4,505	
23	234	62	31	277	627	358	985	41,090	1,463	3,332	9,413	14,207	4,864	18,671	59,681	
...	...	...	...	...	...	...	...	293	18	33	99	159	78	228	520
64	2,351	658	43	694	3,030	814	4,444	6,895	170	488	1,598	2,166	566	2,672	9,477	
3	158	11	5	14	191	175	366	6,954	78	140	708	924	207	1,131	8,085	
1	219	146	69	291	726	198	964	1,753	62	133	256	451	147	593	2,351	
1	13	...	...	1	15	10	25	31	1	1	17	19	4	23	54
...	...	...	...	...	...	...	...	125	...	17	14	81	16	47	172
117	3,060	780	154	1,168	5,248	1,527	6,775	60,359	1,890	4,385	12,451	18,726	5,740	24,466	84,825	

APPEN
STATISTICS OF MINES

Table
Number of workers and output of minerals during the

Province.	District and Mineral field.	Total Output.	Average number of							Total Males and Females.
			Underground.							
			Males.						Females.	
			Overmen and Sidrars.	Coal cutters.	Loaders.	Other skilled labour.	Other unskilled labour.	Total Males.		
	Brought forward .	Tons. 10,814,446	1,203	23,669	9,764	4,430	7,336	46,402	7,293	CO 54,541
Bihar and Orissa— <i>contd.</i>	Sonthal Parganas—									
	Jaintry coalfield . . .	43,530	19	175	103	43	41	381	41	423
	Raniganj coalfield (part of).	81,717	16	355	...	38	57	406	69	535
	Total .	10,983,693	1,238	24,190	9,867	4,511	7,434	47,249	7,293	54,541
Central Provinces.	Chanda	259,344	28	1,073	590	71	386	2,143	182	2,330
	Chhindwara, Penoh Valley coalfield.	978,179	83	2,857	909	481	626	5,046	664	5,710
	Total .	1,234,523	111	3,930	1,599	552	1,013	7,194	846	8,040
Punjab	Jhelum, Salt Range coalfield	41,002	39	195	119	120	136	600	...	600
	Mianwali „ . . .	45,581	14	68	69	15	63	229	...	229
	Shahpur „ . . .	7,456	4	40	...	5	40	59	...	89
	Total .	94,039	57	303	188	140	330	927	...	927
	Grand Total (Coal) for 1933 .	18,160,681	2,161	42,366	17,041	8,300	14,018	83,876	12,680	96,565
	Grand Total of preceding year.	18,710,567	2,397	42,634	15,796	8,964	13,923	83,713	14,583	98,296
	Difference .	-558,906	-246	-268	+1,245	-664	+96	+163	-1,894	-1,731

DIX I—contd.

AND MINERALS—contd.

No. I—contd.

year 1933 at mines under the Indian Mines Act—contd.

persons employed daily in and about the mines.

Ovcrmen and Sirdars.	Open workings.					Females.	Total Males and Females.	Total Underground and Open workings.	Surface.					Females.	Total Males and Females.	Grand Total.
	Males.								Males.							
	Coal-cutters.	Loaders	Other skilled labour.	Other unskilled labour.	Total Males.				Clerical and supervising staff.	Skilled labour.	Unskilled labour.	Total Males.				
<i>A.L.—contd.</i>																
117	3,000	780	154	1,188	5,248	1,537	6,775	60,350	1,800	4,385	12,451	18,736	5,740	24,400	84,825	
1	...	...	...	5	6	...	6	438	32	66	59	187	30	217	645
...	...	...	...	...	...	...	...	535	23	41	80	149	57	206	741
119	3,000	780	154	1,193	5,254	1,527	6,781	61,322	1,950	4,403	12,620	19,063	5,827	24,890	86,211	
4	...	...	...	40	44	...	44	2,374	60	109	428	507	110	707	3,081
...	...	...	3	4	7	1	8	5,718	147	545	1,055	1,747	615	2,362	8,080
4	...	...	3	44	51	1	53	8,092	207	654	1,483	2,344	725	3,069	11,161
2	9	6	...	...	17	...	17	630	32	61	230	320	...	320	955
...	...	...	...	...	...	...	...	229	14	6	146	160	11	177	406
...	...	...	...	...	...	...	...	89	7	9	50	68	...	66	155
2	9	6	...	...	17	...	17	944	53	70	433	501	11	572	1,516
134	3,143	804	193	1,447	5,717	1,708	7,515	104,080	3,430	7,984	19,856	31,270	9,348	40,627	144,707	
139	3,025	750	246	1,536	5,732	2,316	8,048	106,344	3,693	8,535	19,669	32,197	9,048	42,145	148,480	
-5	+118	+18	-53	-93	-15	-518	-533	-2,204	-254	-551	-113	-918	-600	-1,518	-3,782	

DIX I—*contd.*AND MINERALS—*contd.*No. I—*contd.*year 1933 at mines under the Indian Mines Act—*contd.*

daily in and about the mines.

Foremen and Mates	Open workings.						Total Underground and Open workings.	Surface.						Grand Total
	Males.				Females.	Total Males and Females.		Males.				Females.	Total Males and Females.	
	Miners.	Other skilled labour.	Other unskilled labour.	Total Males.				Clerical and supervising staff.	Skilled labour.	Unskilled labour.	Total Males.			
ORE														
47	1,165	27	207	1,446	761	2,207	2,207	106	104	546	756	228	984	3,191
...	...	...	...	..	...	...	...	7	2	44	53	...	53	53
2	...	3	87	92	14	106	106	2	1	110	113	33	146	252
2	...	3	87	92	14	106	106	9	3	154	166	33	199	305
49	1,165	30	294	1,536	775	2,313	2,313	115	107	700	922	261	1,183	3,496
44	1,551	56	135	1,786	938	2,724	2,724	74	103	599	776	201	980	3,704
+5	-386	-26	+159	-248	-163	-411	-411	+41	+4	+101	+146	+57	+203	-208
ORE														
5	95	9	18	127	92	219	219	4	10	23	37	34	71	290
...	...	...	...	...	...	...	...	4	3	41	48	16	64	64

APPEN
STATISTICS OF MINES

Table

Number of workers and output of minerals during

Province.	District and Mineral field.	Total Output.	Average number of persons employed							
			Underground.							
			Males.					Total Males.	Females.	Total Males and Females.
			Foremen and Mates	Miners.	Other skilled labour.	Other unskilled labour.				
MANGANESE										
Central Provinces		Tons.								
	Balaghat . . .	20,501	2	...	...	4	6	...	6
	Bhaidara . . .	60	...	...	...	...	...	...	...
	Chhindwara . . .	8,228	...	...	...	...	...	...	...
	Total . . .	28,789	2	...	...	4	6	...	6
Madras	Kurnool . . .	300	...	...	...	...	...	...	...
	Vizagapatnam . . .	16,698	...	...	...	...	...	...	...
	Total . . .	16,998	...	...	...	...	...	...	...
	Grand Total (Manganese Ore) for 1933.	53,240	2	...	...	4	6	...	6
	Grand Total for preceding year.	58,119	11	224	3	62	300	...	300	
	Difference . . .	-34,879	-9	-224	-3	-58	-294	...	-294	

DIX I- *contd.*AND MINERALS—*contd.*No. I—*contd.*the year 1933 at mines under the Indian Mines Act—*contd.*

daily in and about the mines.

Open workings.								Total Underground and Open workings.	Surface.						Grand Total.
Males.					Females.	Total Males and Females.	Males.				Females.	Total Males and Females.			
Foremen and Mates.	Miners.	Other skilled labour	Other unskilled labour.	Total Males.			Clerical and supervis- ing staff.		Skilled labour.	Unskilled labour.			Total Males.		
ORE—<i>contd.</i>															
23	291	2	3	319	310	629	635	8	22	83	113	87	200	895	
...	...	...	2	2	2	4	4	...	...	8	8	2	10	14
5	112	...	..	117	114	231	231	4	6	30	40	16	56	287
28	403	2	5	438	426	864	870	12	28	121	161	105	266	1,136	
1	4	...	2	7	...	7	7	...	..	...	...	...	...	7
9	477	2	..	48	256	744	744	7	16	6	29	4	33	777	
10	481	2	2	495	256	851	851	7	16	6	29	4	33	784	
43	979	13	25	1,060	774	1,834	1,840	27	57	191	275	159	434	2,274	
82	1,300	111	180	1,673	1,226	2,899	3,199	55	52	277	384	313	697	3,896	
-39	-321	-98	-155	-613	-152	-1,065	-1,359	-28	-5	-86	-109	-154	-263	-1,622	

DIX I—contd.

AND MINERALS—contd.

No. I—contd.

year 1933 at mines under the Indian Mines Act—contd.

daily in and about the mines.

Open workings.								Total Underground and Open workings.	Surface.					Grand Total.
Males.					Females.	Total Males and Females.	Males.				Females.	Total Males and Females.		
Foremen and Mates.	Miners.	Other skilled labour.	Other unskilled labour.	Total Males.			Clerical and supervising staff.		Skilled labour.	Unskilled labour.			Total Males.	
ORE.														
1	.	..	48	44	..	44	2,920	59	184	246	489	..	489	3,409
..	2	..	..	10	10	..	10	12
1	48	44	..	44	2,922	59	184	256	490	..	490	3,421
1	18	19	..	19	2,740	78	199	168	445	..	445	3,185
..	..	.	+25	+25	..	+25	+182	-19	-15	+88	+54	..	+54	+236
AD.														
in those for Lead Ore.														
.
..

APPEN
STATISTICS OF MINES

Table

Number of workers and output of minerals during the

Province.	District and Mineral field.	Total Output.	Average number of persons employed						
			Underground.						
			Males.					Females.	Total Males and Females.
			Foremen and Mates.	Miners.	Other skilled labour.	Other unskilled labour.	Total Males.		
Burma . . .	Northern Shan States	Tons. 1,485	ANTIMONIAL Figures included						
	Total of preceding year.	642	...	.	..	...	...	...
	Difference . . .	+843	...	.	...	...	...	.
Bihar and Orissa	Manbhum	Ounces. 22	...	...	...	.	..	SIL Figures included	
Burma . . .	Northern Shan States.	6,054,047	...	..	...	..	..	Figures included	
	Grand Total (Silver) for 1933.	6,054,069	...	...	..	..	...	...
	Grand Total of preceding year.	5,998,956	...	...	..	..	..	...
	Difference	+55,113	...	.	...	...	...	...
Bihar and Orissa, {	Manbhum . . .	Ounces. 42	1	11	3	.	15	..	GO 15
	Singbhum . . .	225	...	7		.	7	..	7
	Total	267	1	18	3		22	..	22
Burma . . .	Southern Shan States.	...	3	.	23	...	26	..	26
	Grand Total (Gold) for 1933.	267	4	18	26	...	48	..	48
	Grand Total for preceding year.	50	...	2	.	.	2	..	2
	Difference . . .	+217	+1	+16	+26	...	+46	.	+46

DIX I—*contd.*AND MINERALS—*contd.*No. I—*contd.*year 1933 at mines under the Indian Mines Act—*contd.*

daily in and about the mines.

Open workings.					Total Males and Females.	Total Underground and Open workings.	Surface.					Total Males and Females.	Grand Total.	
Males.				Females.			Males.				Females.			
Foremen and Mates.	Miners.	Other skilled labour.	Other unskilled labour.				Total Males.	Clerical and supervising staff.	Skilled labour.	Unskilled labour.				Total Males.
LEAD.														
in those for Lead Ore.														
...	
...	
VEB.														
in those for Gold.														
in those for Lead Ore.														
...	
...	
...	
LD.														
...	6	6	1	7	22	2	5	15	22	14	36	58
...	7	..	1	2	3	...	3	10
...	6	6	1	7	29	2	6	17	25	14	39	68
...	26	..	14	82	96	...	96	122
...	6	6	1	7	55	2	20	99	121	14	135	190
...	15	6	2	23	5	28	30	...	1	3	4	..	4	31
...	-15	-6	+4	+17	-4	-21	+25	+2	+19	+96	+117	+14	+131	+156

APPEN
STATISTICS OF MINES

Table

Number of workers and output of minerals during the

Province.	District and Mineral field.	Total Output.	Average number of persons employed						
			Underground.						
			Males.					Females.	Total Males and Females.
			Foremen and Mates.	Miners.	Other skilled labour.	Other unskilled labour.	Total Males.		
Burma		Tons.							TIN
	Amherst . . .	10	..	...	...	...	...	...	..
	Mergui . . .	979	6	167	4	74	251	..	251
	Tavoy . . .	2,216	13	974	74	223	1,284	...	1,284
	Thaton . . .	4	...	46	.	...	46	..	46
	Grand Total (Tin Ore) for 1933.	3,209	19	1,187	78	297	1,581	...	1,581
	Grand Total for preceding year.	2,957	8	1,132	71	59	1,270	.	1,270
Difference . . .	+252	+11	+55	+7	+288	+311	.	+311	
Burma		Tons.							WOLFRAM
	Mergui . . .	74	}						Figures included
	Tavoy . . .	762							
	Grand Total (Wolfram Ore) for 1933.	836	...	...	...	..	...	..	..
	Grand Total for preceding year.	818	...	...	...	.	...	...	...
Difference . . .	+12	.	...	..	..	..	..	...

APPEN
STATISTICS OF MINES

Table

Number of workers and output of minerals during the

Province.	District and Mineral field.	Total Output.	Average number of persons employed							
			Underground.							
			Males.					Females.	Total Males and Females.	
			Foremen and Mates.	Miners.	Other skilled labour.	Other unskilled labour.	Total Males.			
Baluchistan	Zhob	Tons. 2,702	...	...	...	...	...	...	...	CHROMITE
Sihar and Orissa	Singhbhum . . .	7,068	...	..	...	..	...	..	...
	Grand Total (Chromite Ore) for 1933.	9,770	...	..	...	...	...	...	...
	Grand Total for preceding year.	7,866	...	...	...	...	...	...	...
	Difference	+1,904	...	...	...	...	...	...	...
Bihar and Orissa.	Singhbhum . . .	Tons. 201,722	2	22	344	940	1,308	...	1,308	COPPER
	Total of preceding year.	175,375	4	37	357	885	1,283	..	1,283	
	Difference	+26,347	-2	-15	-13	+55	+25	...	+25*	

DIX I—*contd.*AND MINERALS—*contd.*No. I—*contd.*year 1938 at mines under the Indian Mines Act—*contd.*

daily in and about the mines.

Open workings.							Total Underground and Open workings.	Surface.						Grand Total.
Males.					Females.	Total Males and Females.		Males.				Females.	Total Males and Females.	
Foremen and Mates.	Miners.	Other skilled labour.	Other unskilled labour.	Total Males.				Clerical and supervis- ing staff.	Skilled labour.	Unskilled labour.	Total Males.			
ORE.														
2	29	...	...	31	...	31	31	3	...	20	23	...	23	51
46	459	65	42	612	582	1,194	1,194	15	25	3	43	52	95	1,289
48	488	65	42	643	582	1,225	1,225	18	25	23	66	52	118	1,343
47	486	115	55	703	570	1,273	1,273	18	28	19	65	40	105	1,378
+1	+2	-50	-13	-60	+12	-48	-48	...	-8	+4	+1	+12	+13	-35
ORE.														
...	...	...	...	...	...	...	1,308	22	209	286	517	225	742	2,050
3	...	1	56	60	23	83	1,366	22	140	186	348	172	520	1,886
-3	...	-1	-56	-60	-23	-83	-58	...	+69	+100	+169	+53	+222	+164

APPEN
STATISTICS OF MINES

Table

Number of workers and output of minerals during the

Province.	District and Mineral field.	Total Output.	Average number of persons employed						
			Underground.						Total Males and Females
			Males.					Females.	
			Foremen and Mates.	Miners.	Other skilled labour.	Other unskilled labour.	Total Males.		
Burma . . .	Northern Shan States.	Tons. 12,510	COPPER Figures included						
	Total of preceding year.	9,729	...	...	..	...	...	..	...
	Difference . . .	+2,821	...	.	...	...	...	...	...
Burma . . .	Northern Shan States.	Tons. 3,350	NICKEL Figures included						
	Total of preceding year.	3,580	...	...	...	...	...	...	...
	Difference . . .	-230	...	..	...	...	...	...	...
Burma . . .	Northern Shan States.	Tons. 61,432	ZINC CON Figures included						
	Total of preceding year.	44,484	...	...	..	...	...	..	...
	Difference . . .	+16,948	...	...	.	...	...	...	...

APPEN
STATISTICS OF MINES

Table

Number of workers and output of minerals during the

Province.	District and Mineral field.	Total Output.	Average number of persons employed						
			Underground.						
			Males.				Total Males.	Females.	Total Males and Females.
			Foremen and Mates.	Miners.	Other skilled labour.	Other unskilled labour.			
		Cwt.							MI
Bihar and Orissa.	Gaya	8,402	45	1,065	646	337	2,093	...	2,093
	Hazaribagh	24,266	344	3,941	587	1,169	6,041	...	6,041
	Monghyr	6	...	..	...	.	...	...	...
	Total	32,674	389	5,006	1,233	1,506	8,184	...	8,184
Madras	Nellore	7,932	42	364	125	173	704	..	704
	Nilgiris	73	1	11	1	8	21	...	21
	Total	8,005	43	375	126	181	725	...	725
Rajputana	Ajmer-Merwara	326	5	94	...	...	39	..	39
	Grand Total (Mica) for 1933.	41,005	437	5,415	1,359	1,687	8,898	...	8,898
	Grand Total for preceding year.	32,644	279	3,994	690	1,269	6,232	...	6,232
	Difference	+ 8,361	+ 138	+ 1,421	+ 669	+ 418	+ 2,666	...	+ 2,666

DIX I—*contd.*AND MINERALS—*contd.*No. I—*contd.*year 1933 at mines under the Indian Mines Act—*contd.*

daily in and about the mines.

F. O. M. and Mates.	Open workings.						Total Underground and Open workings.	Surface.						Grand Total.	
	Males.				Females.	Total Males and Females.		Males.				Females.	Total Males and Females.		
	Miners.	Other skilled labour.	Other unskilled labour.	Total Males.				Clerical and supervising staff.	Skilled labour.	Unskilled labour.	Total Males.				
CA.															
13	245	172	159	569	14	603	2,696	72	84	53	209	14	223	2,919	
51	243	75	180	549	92	641	6,682	211	221	320	752	239	991	7,673	
1	8	9	..	18	..	18	18	1	..	..	1	18	19	37
65	496	256	339	1,156	106	1,262	9,396	264	305	373	962	271	1,233	10,629	
15	91	55	51	212	248	460	1,164	41	134	88	263	347	610	1,774	
...	...	...	...	...	..	...	21	1	3	3	7	...	7	28
15	91	75	51	212	248	460	1,185	42	137	91	270	347	617	1,802	
6	26	6	...	33	25	63	102	...	20	2	22	4	26	1,23	
86	613	317	330	1,406	379	1,785	10,659	326	462	466	1,254	622	1,876	12,559	
110	2,202	252	962	3,526	317	3,843	10,075	252	432	516	1,200	731	1,931	12,006	
-24	-1,589	+65	-572	-2,120	+62	-2,058	+608	+74	+30	-50	+54	-109	-55	+553	

DIX I—*contd.*AND MINERALS—*contd.*No. I—*contd.*year 1933 at mines under the Indian Mines Act—*contd.*

daily in and about the mines.

		Open workings.					Total Males and Females.	Total Underground and Open workings.	Surface.					Total Males and Females.	Grand Total.	
		Males.							Females.	Males.						Females.
Foremen and Mates	Miners	Other skilled labour.	Other unskilled labour.	Total Males.	Clerical and supervising staff	Skilled labour.				Unskilled labour.	Total Males.					
LT.																
1	12	..	..	13	3	16	631	1	69	255	325	..	325	956
..	..	..	..	..	..	..	140	..	..	..	..	..	..	149
..	..	..	..	..	..	..	133	..	9	73	82	..	82	215
1	12	..	..	13	3	16	913	1	78	328	407	..	407	1,320
1	7	..	..	8	..	8	770	1	69	370	440	..	440	1,210
..	+5	..	..	+5	+3	+8	+143	..	+9	-42	-33	..	-33	+110
SITE.																
18	195	34	298	455	249	704	704	12	17	82	111	15	126	830		
9	155	..	374	538	306	844	844	12	108	16	136	22	158	1,002		
+9	-50	+34	-76	-83	-57	-140	-140	..	-91	+66	-25	-7	-32	-172		

DIX I—contd.

AND MINERALS—contd.

No. I—contd.

year 1933 at mines under the Indian Mines Act—contd.

daily in and about the mines.

TITL	Open workings						Total Underground and Open workings.	Surface.						Grand Total.
	Males.					Females.		Males.					Females.	
	Foremen and Mates.	Miners.	Other skilled labour.	Other unskilled labour.	Total Males.			Clerical and supervising staff.	Skilled labour.	Unskilled labour.	Total Males.	Total Males and Females.		
1	26	.	..	27	..	27	27	1	..	5	6	.	6	33
4	9	4	11	28	35	63	63	5	..	24	29	18	47	110
5	35	4	11	55	35	90	90	6	..	29	35	18	53	143
1	12	..	15	28	40	68	96	..	2	5	7	14	21	117
..	..	10	1	11	1	12	12	1	..	..	1	..	1	13
1	40	8	20	69	4	73	117	2	8	53	63	1	63	210
7	87	22	47	163	80	243	345	9	10	86	105	33	138	483
8	63	4	32	107	83	190	223	3	..	25	28	36	64	288
- 1	+24	+18	+15	+56	-3	+53	+123	+6	+10	+61	+77	-3	+74	+197
TE.	61	56	46	190	52	242	242	..	..	..	..	.	..	242
27	..	20	..	21	3	24	24	..	..	..	..	.	..	24
1	..	..	..	..	..	..	..	..	..	..	..	..	..	..
28	61	76	46	211	55	266	266	..	..	..	..	..	..	266

APPEN
STATISTICS OF MINES

Table

Number of workers and output of minerals during the

Province.	District and Mineral field.	Total Output.	Average number of persons employed						
			Underground.						
			Males.					Females.	Total Males and Females.
			Foremen and Mutes	Miners.	Other skilled labour.	Other unskilled labour.	Total Males.		
		Tons.							SLA
Punjab . . .	Gurgaon . . .	1,381	...	...	...	..	...	...	...
	Kangra . . .	4,867	...	...	...	...	...	...	...
	Total . . .	6,248	...	...	...	...	...	...	..
	Grand Total (Slate) for 1933.	8,060	...	...	..	...	..	...	...
	Grand Total for preceding year.	7,641	...	...	...	..	...	...	...
	Difference . . .	+ 419	...	...	...	...	...	...	...
Bihar and Orissa.	Ranchi . . .	9,870	...	...	...	..	...	..	LIME
	Shahabad . . .	208,487	...	..	...	...	...	...	...
	Singbhum . . .	3,963	...	..	...	..	...	...	...
	Total . . .	217,320	...	..	...	...	..	...	...
Bombay . . .	Sukkur . . .	128,260	...	...	...	...	...	...	...
Burma . . .	Amherst . . .	8,025	...	..	...	...	...	...	...
	Northern Shan States.	17,146	...	..	...	...	...	...	...
	Total . . .	25,170	...	...	...	..	...	...	...
Central Provinces.	Bilaspur . . .	1,660	...	...	...	...	...	...	..
	Jubbulpore . . .	581,160	...	...	...	...	...	...	...
	Raipur . . .	651	...	...	...	...	...	..	...
	Yeotmal . . .	7,800	...	...	...	...	..	...	...
	Total . . .	591,481	...	...	..	...	..	...	...

DIX I—*contd.*AND MINERALS—*contd.*No. I—*contd.*year 1933 at mines under the Indian Mines Act—*contd.*

daily in and about the mines.

Open workings.							Total Underground and Open workings.	Surface.						Grand Total.
Males.					Females.	Total Males and Females.		Males.				Females.	Total Males and Females.	
Foremen and Mates.	Miners.	Other skilled labour.	Other unskilled labour.	Total Males.				Clerical and supervis- ing staff.	Skilled labour.	Unskilled labour.	Total Males.			
TE—<i>contd.</i>														
12	38	46	30	126	...	126	126	1	3	8	12	...	12	138
41	75	91	68	275	...	275	275	...	...	...	...	...	...	275
53	113	137	98	401	...	401	401	1	3	8	12	...	12	413
81	174	218	144	612	55	667	667	1	3	8	12	..	12	679
58	169	172	111	530	46	576	576	1	...	3	4	..	4	580
+23	-15	+41	+33	+82	+9	+91	+91	...	+3	+5	+8	...	+8	+99
STONE.														
1	61	2	6	70	20	90	90	1	2	10	13	8	21	111
68	270	88	597	1,023	143	1,166	1,166	73	76	125	274	34	308	1,474
2	..	...	18	20	16	36	36	...	..	...	...	...	...	36
71	331	90	621	1,113	179	1,292	1,292	74	78	135	287	42	329	1,621
6	80	2	160	248	40	288	288	3	5	20	28	...	28	316
3	14	20	40	77	30	107	107	2	1	5	8	..	8	115
6	...	4	164	164	...	164	164	...	...	...	...	...	...	164
9	14	24	194	241	30	271	271	2	1	5	8	...	8	279
1	5	1	9	16	10	26	26	2	5	7	14	6	20	46
86	452	115	1,386	2,039	2,387	4,426	4,426	35	56	213	304	216	520	4,946
.	26	...	...	26	16	42	42	2	...	12	14	5	19	61
3	...	...	38	41	28	69	69	...	6	13	19	...	19	83
90	483	116	1,433	2,122	2,441	4,563	4,563	39	67	245	351	227	578	5,141

STATISTICS OF MINES

Table

Number of workers and output of minerals during the

Province.	District and Mineral field.	Total Output.	Average number of persons employed						
			Underground.						
			Males.					Females.	Total Males and Females.
			Foremen and Mates.	Miners.	Other skilled labour.	Other unskilled labour.	Total Males.		
Punjab	Attock	Tons 80 465	LIME	
	Jhelum	16,798	...	..	..	..	..
	Rawalpindi	53,655	..	..	..	..	..
	Shahpur	2,961	..	..	..	..	..
	Total	157,879	...	..	..	..	..
	Grand Total (Limestone) for 1933	1,120,110	...	..	..	..	..
Grand Total for preceding year.	725,378	..	..	..	..	..
Difference	+394,732	...	..	..	..	..
Bengal	Birbhum	Tons. 212,265	STONE (CHIEFLY IGNEOUS)	
Bihar and Orissa	Gaya	60,120	...	..	..	..	..
	Monghyr	11,112	..	..	..	..	..
	Palaman	2,977	..	..	..	..	..
	Shahabad	31,364	..	..	..	..	..
	Sonthal Parganas	297,962	..	..	..	..	..
	Singhbhum	61,456	..	..	..	..	..
Total	464,891	..	..	..	..	..
Bombay	Bombay	112,561	..	..	..	..	..
	Bombay Suburban	18,255	..	..	..	..	..
	Hyderabad	8,741	..	..	..	..	..
	Kaira	21,032	..	..	..	..	..
	Karachi	1 229	..	..	..	..	..
	Sukkur	48 878	..	..	..	..	..
	Surat	73,529	..	..	..	..	..
Thana	19,211	..	..	..	..	..
Total	306,436	...	..	..	..	..

DIX I—contd.

AND MINERALS—contd.

No. 1—contd.

year 1933 at mines under the Indian Mines Act—contd.

daily in and about the mines.

Open workings.							Total Underground and Open workings.	Surface.						Grand Total.	
Males.					Females.	Total Males and Females.		Males.				Females.	Total Males and Females.		
Foremen and Nates	Miners.	Other skilled labour.	Other unskilled labour.	Total Males				Clerical and supervising staff.	Skilled labour.	Unskilled labour.	Total Males.				
STONE—contd.															
5	..	..	155	160	..	160	160	3	4	42	49	..	49	200
1	..	..	13	14	..	14	14	1	..	40	41	..	41	53
5	5	24	85	119	..	119	119	5	3	264	272	..	272	391	
1	..	..	50	..	..	51	51	1	..	..	1	..	52	52
12	5	24	303	344	..	344	344	10	7	346	363	..	363	707	
188	913	256	2,711	4,068	2,690	6,758	6,758	128	158	751	1,037	269	1,306	8,064	
211	997	288	2,031	3,517	2,096	5,613	5,613	147	142	740	1,029	235	1,264	6,877	
-23	-54	-32	+690	+551	+594	+1,145	+1,145	-19	+16	+11	+8	+34	+42	+1,187	
ROCK)															
1	316	30	22	369	11	380	380	24	165	262	451	66	517	897	
26	..	..	331	357	223	580	580	..	..	..	..	..	..	580
1	30	..	27	58	41	99	99	..	..	..	..	..	..	99
2	..	..	37	39	..	39	39	1	..	..	1	..	1	40
14	13	380	87	494	74	568	568	..	..	..	..	..	..	568
14	218	398	477	1,107	143	1,250	1,250	69	173	440	682	177	859	2,109	
12	..	..	351	363	264	627	627	3	..	35	38	24	62	689
69	261	778	1,310	2,418	745	3,163	3,163	73	178	475	721	201	922	4,085	
..	74	37	79	190	..	190	190	11	..	..	11	34	45	235
1	4	..	21	26	5	31	31	2	16	25	49	..	49	74	
..	..	..	58	53	..	53	53	..	..	..	..	..	..	53
2	4	4	..	10	..	10	10	5	4	90	99	10	109	119	
..	26	..	28	54	7	61	61	..	..	7	7	..	7	68
9	59	46	..	114	50	164	164	2	4	52	58	1	59	223	
7	29	57	142	235	193	428	428	6	..	..	6	..	6	434
5	..	..	107	112	52	164	164	6	..	..	6	..	6	176
24	196	144	430	794	307	1,101	1,101	32	24	174	230	45	275	1,376	

DIX I—contd.

AND MINERALS—contd.

No. 1—contd.

year 1933 at mines under the Indian Mines Act—contd.

daily in and about the mines.

Open workings.							Total Underground and Open workings.	Surface.						Grand Total.
Males.					Females.	Total Males and Females.		Males.				Females.	Total Males and Females.	
Foremen and Mates.	Miners.	Other skilled labour.	Other unskilled labour.	Total Males.				Clerical and supervising staff.	Skilled labour.	Unskilled labour.	Total Males.			
ROCK) — contd.														
...	...	...	20	20	20	40	40	...	...	...	...	...	40
...	...	...	225	225	...	225	225	20	...	...	...	...	245
...	...	5	61	66	96	162	162	...	...	...	...	...	162
13	943	81	181	1,218	13	1,231	1,231	4	14	12	30	...	1,261	
...	...	...	76	76	7	83	83	...	...	...	...	...	83
13	943	86	563	1,605	136	1,741	1,741	24	14	12	50	...	1,791	
3	...	...	59	62	43	105	105	1	...	...	1	...	106
...	...	...	36	36	...	36	36	...	...	...	...	...	36
3	...	...	95	98	43	141	141	1	...	...	1	...	142
...	...	386	89	475	409	884	884	23	1	96	120	50	1,054	
...	...	10	43	53	22	75	75	...	...	...	...	...	75
...	26	5	347	378	130	508	508	5	...	50	55	40	608	
...	...	...	9	9	...	9	9	2	...	10	12	...	21
...	...	...	5	5	10	15	15	...	...	...	...	...	15
...	2	...	10	12	4	16	16	...	...	...	...	...	16
...	26	401	503	932	575	1,507	1,507	30	1	156	187	90	1,784	
8	158	1	199	366	44	410	410	3	5	14	22	...	432	
...	...	...	...	...	...	...	...	...	...	822	822	72	894
5	...	...	100	105	40	145	145	...	...	...	...	...	145
2	23	50	113	188	...	188	188	...	15	...	15	...	203	
15	181	51	412	659	84	743	743	8	20	836	859	72	1,674	
3	23	30	44	100	18	118	118	3	...	...	3	15	136
4	...	...	59	63	10	73	73	4	...	32	36	...	109
22	252	15	94	343	78	461	461	16	58	146	220	107	788	
2	...	...	129	131	59	190	190	2	1	29	32	4	226
31	275	45	326	677	165	842	842	25	59	207	291	126	1,259	
166	2,200	1,535	3,661	7,552	2,066	9,618	9,618	212	456	2,123	2,790	600	13,008	
178	2,278	1,094	3,515	7,065	1,757	8,822	8,822	238	251	1,263	1,757	670	11,249	
-78	-72	+441	+146	+487	+309	+796	+796	-26	+205	+854	+1,033	-70	+1,759	

APPEN
STATISTICS OF MINES

Table

Number of workers and output of minerals during the

Province.	District and Mineral field.	Total Output.	Average number of persons employed						Total Males and Females.
			Underground.						
			Males.					Females.	
			Foremen and Mates.	Miners.	Other skilled labour.	Other unskilled labour.	Total Males.		
Bihar and Orissa.	Shahabad . . .	Tons 24,557	..	..	..	.	..	..	SAND ..
Burma .	Toungoo . . .	21,215	..	..	..	..	..	..	..
United Provinces.	Allahabad . . .	13,444	..	..	..	..	..	..	..
	Banda . . .	2,523	..	..	..	..	..	..	..
	Total . . .	15,967	..	..	.	..	..	..	..
	Grand Total (Sandstone) for 1933.	61,739	..	..	..	..	..	..	..
	Grand Total for preceding year.	29,714	..	..	..	.	..	..	..
	Difference . . .	+32,025	..	..	..	..	..	..	..
Burma . . .	Thaton . . .	Tons. 37,263	LATE						..
	Toungoo . . .	288	Figures included						
	Total . . .	37,551	
Central Provinces.	Jubbulpore . . .	3,222	..	..	..	..	..	..	..
	Grand Total (Late-rite) for 1933.	40,793	..	..	..	..	..	..	..
	Grand Total for preceding year.	27,205	..	..	..	..	..	..	..
	Difference . . .	+13,588	..	..	.	..	..	..	..

DIX I—contd.

AND MINERALS—contd.

No. 1—contd.

year 1933 at mines under the Indian Mines Act—contd.

daily in and about the mines.

Open workings.							Total Underground and Open workings.	Surface.						Grand Total.
Males.					Females.	Total Males and Females		Males.				Females	Total Males and Females.	
Foremen and Mates.	Miners.	Other skilled labour.	Other unskilled labour	Total Males.				Clerical and supervising staff.	Skilled labour.	Unskilled labour.	Total Males.			
STONE.														
3	19	...	84	106	...	106	106	...	...	15	15	9	24	190
3	5	10	31	49	...	49	49	..	1	4	5	...	5	54
5	1	9	63	77	33	110	110	1	4	...	5	...	5	115
1	1	2	11	15	9	24	24	1	2	...	3	...	3	27
6	2	11	73	92	42	134	134	2	6	...	8	...	8	142
12	26	21	188	247	42	289	289	2	7	10	28	9	37	326
8	44	60	106	218	39	257	257	3	2	4	9	...	9	266
+4	-18	-39	+82	+29	+3	+32	+32	-1	+5	+15	+19	+9	+28	+60
RITE.														
in those for Stone.														
...	10	...	...	10	...	10	10	...	...	...	...	...	...	10
...	10	...	...	10	...	10	10	...	...	...	...	...	...	10
3	...	7	48	58	72	130	130	1	4	...	5	4	9	139
3	10	7	48	68	72	140	140	1	4	...	5	4	9	149
3	11	5	32	51	29	80	80	3	2	8	13	...	13	93
...	-1	+2	+16	+17	+43	+60	+60	-2	+2	-8	-8	+4	-4	+56

APPEN
STATISTICS OF MINES

Table

Number of workers and output of minerals during the

Province.	District and mineral field.	Total Output.	Average number of persons employed						
			Underground.						
			Males.					Females.	Total Males and Females.
			Foremen and Mates.	Miners.	Other skilled labour.	Other unskilled labour.	Total Males.		
			GRA						
Bihar and Orissa.	Singhbhum . . .	Tons. 3,590	} Figures included						
Madras . . .	Guntur . . .	40							
United Provinces	Jhansi . . .	674							
	Grand Total (Gravel) for 1938.	4,304							...
	Grand Total for preceding year.	25,252	...	...	...	...	...	...
	Difference . . .	-20,948	...	...	...	...	...	...
			MU						
Bihar and Orissa.	Singhbhum . . .	Tons. 1,934	} Figures included						
Bombay . . .	Bombay Suburban	3,027							
Central Provinces.	Saugar . . .	60							
Madras . . .	Guntur . . .	800							
United Provinces.	Allahabad . . .	108							
	Jhansi . . .	2,687							
	Total . . .	2,795	...	...	...	...	...	...
	Grand Total (Munum) for 1938.	8,616	...	...	...	...	...	...
	Grand Total for preceding year.	15,384	...	...	...	...	...	...
	Difference . . .	-6,768	...	...	...	...	...	...

APPEN
STATISTICS OF MINES

Table
Number of workers and output of minerals during the

Province.	District and mineral field.	Total Output.	Average number of persons employed						
			Underground.						
			Males					Females.	Total Males and Females.
			Foremen and Mates.	Minors.	Other skilled labour.	Other unskilled labour.	Total Males.		
Bengal . . .	Burdwan . . .	Tons. 16,700	..	..	..	..	..	..	SA
Central Provinces.	Jubbulpore . . .	181	..	..	..	..	..	..	Figures included
	Saugor . . .	20	..	..	..	..	..	..
	Total . . .	201	..	..	..	..	..	..
	Grand Total (Sand) for 1933.	16,901	..	..	..	..	..	..
	Grand Total for preceding year	..	..	..	..	..	..	..
	Difference . . .	+16,901	..	..	..	..	..	..
Bengal	Burdwan . . .	Tons. 1,165	..	..	..	..	..	..	FIRE
Bihar and Orissa.	Manbhum . . .	13,752	..	..	..	..	..	..	..
	Palamau . . .	3,559	..	..	..	..	..	..	..
	Sambalpur . . .	4,400	..	..	..	..	..	..	..
	Total . . .	21,711	..	..	..	..	..	..	..

DIX I—*contd.*AND MINERALS—*contd.*No. 1—*contd.*year 1933 at mines under the Indian Mines Act—*contd.*

daily in and about the mines.

Open workings.							Total Males and Females.	Total Underground and Open workings.	Surface.						Grand Total.
Males.					Females.	Males.				Females.	Total Males and Females.				
Foremen and Mates.	Miners.	Other skilled labour.	Other unskilled labour.	Total Males.		Clerical and supervising staff.			Skilled labour.			Unskilled labour.	Total Males.		
ND															
2	47	..	..	49	25	74	74	2	..	31	33	..	33	107
..	..	..	3	3	..	3	3	1	..	..	1	..	1	4
in those for stone'															
..	..	..	3	3	..	3	3	1	..	..	1	..	1	4
2	47	..	3	52	25	77	77	3	..	31	34	..	34	111	
..	
+2	+47	..	+3	+52	+25	+77	+77	+3	..	+31	+34	..	+34	+111	
CLAY															
1	10	8	10	29	7	36	36	..	..	10	10	8	18	54
162	78	..	86	326	35	361	361	2	13	38	53	6	59	420	
1	27	..	..	28	17	45	45	1	..	9	10	9	19	64
1	15	..	1	17	6	22	22	1	..	10	11	6	17	39	
164	110	..	87	371	57	428	428	4	13	57	74	21	95	523	

APPEN
STATISTICS OF MINES

Table

Number of workers and output of minerals during the

Province.	District and Mineral field.	Total Output.	Average number of persons employed						
			Underground.						
			Males.					Females.	Total Males and Females.
			Foremen and Matos.	Miners.	Other skilled labour	Other unskilled labour.	Total Males.		
Central Provinces.	Jubbulpore . . .	Tons 23,836	...	..	..	.	...	...	FIRE
	Grand Total (Fire Clay) for 1933.	46,712	...	..	...	...	...	...	...
	Grand Total for preceding year.	32,693	.	.	...	...	...	...	...
	Difference . .	+14,019	...	..	..	...	..	...	...
Bihar and Orissa.	Bhagalpur . . .	Tons 19	...	2	2	...	4	...	CHINA 4
	Singhbhum . .	10,530	..	...	...	...	...	...	...
	Total . .	10,549	...	2	2	...	4	...	4
Burma . .	Thaṭon . . .	391	...	...	...	...	...	..	...
Delhi . .	Delhi . . .	5,342	6	31	4	...	41	..	41
Rajputana . .	Ajmer-Merwara . .	840	.	...	...	...	...	.	...
	Grand Total (China Clay) for 1933.	17,122	6	33	6	...	45	...	45
	Grand Total for preceding year.	10,020	...	..	...	...	...	...	...
	Difference	+7,102	+6	+33	+6	...	+45	...	+45

DIX I—*contd.*AND MINERALS—*contd.*No. 1—*contd.*year 1933 at mines under the Indian Mines Act—*contd.*

daily in and about the mines.

Open workings.								Total Underground and Open workings.	Surface.						Grand Total.
Males.					Females.	Total Males and Females.	Males.					Total Males and Females.			
Foremen and Mates.	Miners.	Other skilled labour.	Other unskilled labour.	Total Males.			Clerical and supervising staff.		Skilled labour.	Unskilled labour.	Total Males.		Females.		
CLAY—<i>contd.</i>															
3	...	...	174	177	198	375	375	2	..	20	22	...	22	397
168	180	8	271	577	262	839	839	6	13	87	106	29	195	974	
8	85	45	180	318	187	505	505	6	4	197	207	95	302	807	
+160	+45	-37	+91	+59	+75	+334	+334	...	+9	-110	-101	-66	-167	+167	
CLAY.															
...	1	...	1	2	7	9	18	...	...	..	...	...	...	13
21	131	3	209	364	428	792	792	24	38	179	236	209	445	1,237	
21	132	3	210	366	435	801	805	24	33	170	236	209	445	1,250	
...	...	...	4	4	...	4	4	1	...	6	7	...	7	11
2	8	...	11	21	...	21	62	1	1	13	15	2	17	70	
1	...	.	4	5	...	5	5	...	..	...	...	...	...	5
24	140	3	229	396	435	831	876	26	34	198	258	211	469	1,345	
17	251	2	44	314	469	803	803	20	30	197	187	233	420	1,223	
+7	-111	+1	+185	+82	-54	+28	+73	+6	+4	+61	+71	-22	+49	+122	

APPEN
STATISTICS OF MINES

Table

Number of workers and output of minerals during the

Province.	District and mineral field.	Total Output.	Average number of persons employed						
			Underground.						
			Males.					Females.	Total Males and Females.
			Foremen and Mates.	Minors.	Other skilled labour.	Other unskilled labour.	Total Males.		
		Tons							CL
Assam . . .	Lakhimpur . . .	4,139	...	...	...	.	...	..	.
Sengal . . .	Burdwan	5,126	..	..	..	..	..	..	.
Central Provinces.	Jubbulpore . . .	5,624	.	...	...	...	..	...	...
Punjab . . .	Attuck	25,347	Figures included in those						
	Grand Total (Clay) for 1933.	40,236	..	..	...	...	...	...	..
	Grand Total for preceding year	29 885		...	...	...	...	...	...
	Difference	+10,351	...	...	...	...	...		...
Madras . . .	Anantapur . . .	Tons. 110	...	...	...	...	...	...	BARY
	Cuddapah	1,786	...	...	..	..	..	..	...
	Kurnool . . .	724	2	9	...	..	...	...	11
	Grand Total (Barytes) for 1933.	2,720	2	9	...	...	...	...	11
	Grand Total for preceding year.	2,093	...	..	...	..	...	...	...
	Difference	+627	+2	+9	...	..	...	...	+11

DIX I—*contd.*AND MINERALS—*contd.*No. I—*contd.*year 1933 at mines under the Indian Mines Act—*contd.*

daily in and about the mines.

AY.	Open workings.						Total Underground and Open workings.	Surface.						Grand Total.
	Males.					Females.		Males.					Females.	
	Foremen and Mates.	Miners.	Other skilled labour.	Other unskilled labour.	Total Males.			Clerical and supervising staff.	Skilled labour.	Unskilled labour.	Total Males.	Total Males and Females.		
1	...	...	25	26	10	36	36	...	...	...	...	...	...	36
...	..	13	...	13	17	30	30	...	7	...	7	...	7	37
1	...	2	6	9	11	20	20	...	...	...	...	..	...	20
for Limestone.														
2	...	15	31	48	33	86	86	...	7	...	7	...	7	93
2	37	...	20	59	24	83	83	2	14	...	16	9	25	108
...	-37	+15	+11	-11	+14	+3	+3	-2	-7	...	-9	-9	-18	-15
TES.														
...	..	85	7	23	...	23	23	4	...	...	4	...	4	27
...	...	13	7	13	40	95	95	2	...	39	41	56	97	192
1	...	12	21	34	..	34	45	...	...	4	4	35	39	84
1	35	19	57	112	40	152	163	6	...	43	49	91	140	303
...	61	14	38	113	63	176	176	14	16	8	38	64	102	276
+1	-26	+5	+19	-1	-23	-24	-18	-8	-16	+35	+11	+27	+38	+25

APPEN
STATISTICS OF MINES

Table

Number of workers and output of minerals during the

Province.	District and mineral field.	Total Output.	Average number of persons employed							
			Underground.							
			Males.					Total Males.	Females.	Total Males and Females.
			Foremen and Mates.	Miners.	Other skilled labour.	Other unskilled labour.				
		Tons.							APA	
Madras . . .	Trichinopoly . . .	37	...	...	...	...	...	...	...
	Total for preceding year.	121	...	...	...	...	...	...	...
	Difference . . .	-84	...	...	...	...	...	...	...
		Tons.							OCH	
Central Provinces.	Chanda . . .	125	1	4	...	...	5	...	5
United Provinces.	Banda . . .	134	...	5	...	...	5	...	5
	Grand Total (Ochre) for 1933.	259	1	9	...	...	10	...	10
	Grand Total for preceding year.	371	1	8	...	...	9	...	9
	Difference . . .	-12	...	+1	...	...	+1	...	+1
		Tons.	FULLER'S							
Central Provinces.	Jubbulpore . . .	35	Figures included in those for							
	Total of preceding year.	19	...	...	..	...	..	..	...
	Difference . . .	+16	...	...	...	...	..	..	...

DIX I—*contd.*AND MINERALS—*contd.*No. I—*contd.*year 1983 at mines under the Indian Mines Act—*contd.*

daily in and about the mines.

TITL	Open workings.						Total Underground and Open workings.	Surface.						Grand Total.	
	Males.					Females.		Males.					Females.		
	Foremen and Mates.	Miners.	Other skilled labour.	Other unskilled labour.	Total Males.			Clerical and super- vising staff.	Skilled labour.	Unskilled labour.	Total Males.	Total Males and Females.			
...	3	3	18	21	21	..	...	...	...	...	...	21	
...	4	4	22	26	26	...	..	...	...	...	...	26	
...	-1	-1	-4	-5	-5	...	...	...	...	...	...	-5	
RE.	...	3	3	...	3	8	...	3	...	3	3	6	14
...	5	2	2	3	5	10
...	3	...	...	3	...	3	13	2	3	...	5	6	11	24
1	1	2	3	5	14	1	4	...	5	6	11	25	
-1	+3	...	-1	+1	-3	-2	-1	+1	-1	...	...	...	...	-1
EARTH.	
Limestone.	
...	
...	

APPEN
STATISTICS OF MINES

Table

Number of workers and output of minerals during the

Province.	District and mineral field.	Total Output.	Average number of persons employed						
			Underground.						
			Males.					Females.	Total Males and Females.
			Foremen and Mates.	Miners.	Other skilled labour.	Other unskilled labour.	Total Males.		
Rajputana	Ajmer-Marwara .	Tons. 677	1	5	...	...	6	..	FELS 6
	Total of preceding year.	473	...	...	...	...	...	...	...
	Difference .	+204	+1	+5	...	...	+6	...	+6
Burma . . .	Katha . . .	Carats (Rubies) 1,103	...	...	...	...	...	...	GE ...
	Total of preceding year.	...	...	...	...	...	...	...	...
	Difference .	+ 1,103	...	...	...	...	...	...	...
	Grand Total (Metal-liferous Mines) for 1933.	...	577	8,038	2,098	4,967	15,680	110	15,790
	Grand Total for preceding year.	...	397	6,651	1,400	4,035	12,483	128	12,611
	Difference	...	+180	+1,387	+698	+932	+3,197	-18	+3,179
	Grand Total (All Minerals) for 1933.	..	...	...	...	...	99,556	12,799	112,355
	Grand Total for preceding year.	...	...	...	...	...	96,196	14,711	110,907
	Difference .	...	...	...	...	...	+3,360	-1,912	+1,448

DIX I—*concl'd.*AND MINERALS—*concl'd.*No. I—*concl'd.*year 1933 at mines under the Indian Mines Act—*concl'd.*

daily in and about the mines.

Open workings.								Total Underground and Open workings.	Surface.						Grand Total
Males.					Females.	Total Males and Females.	Males.				Females.	Total Males and Females.			
Foremen and Mates.	Miners.	Other skilled labour.	Other unskilled labour.	Total Males.			Clerical and supervising staff.		Skilled labour.	Unskilled labour.			Total Males.		
PAR.															
2	16	...	...	18	3	21	27	...	...	...	...	..	...	27
1	6	...	...	7	1	8	8	...	...	...	...	...	...	8
+1	+10	...	...	+11	+2	+13	+19	...	...	...	...	...	...	+19
MS.															
...	20	...	..	20	...	20	20	...	...	...	...	..	...	20
...	
...	+20	...	...	+20	.	+20	+20	...	...	...	...	...	...	+20
966	9,509	4,060	10,614	25,149	8,923	34,072	49,862	1,150	2,059	6,129	9,337	2,601	11,938	61,800	
838	11,344	3,112	9,230	24,524	8,445	32,969	45,320	1,054	1,774	4,874	7,702	2,867	10,569	56,168	
+128	-1,835	+948	+1,384	+625	+478	-1,103	+4,282	+96	+285	+1,254	+1,635	-286	+1,349	+5,632	
...	...	...	...	30,866	10,721	41,587	153,942	...	...	...	40,616	11,949	52,565	206,507
...	...	...	...	30,256	10,761	41,017	151,924	...	...	...	39,899	12,835	52,734	201,658
...	..	...	...	+610	-40	+570	+2,018	...	...	...	+717	-886	-169	+1,849

Table

Statement of total mining population in Coal Mines in British India

Name of Province.	Name of Coalfield or District.	Total number attending work								
		Males.				Females.				Total Males and Females.
		Under-ground.	O. W.	Surface.	Total.	Under-ground.	O. W.	Surface.	Total.	
		Tons.								
Assam	Makum . . .	1,089	...	284	1,373	...	...	65	65	1,438
	Nazira . . .	246	...	167	413	...	...	1	1	414
	Total . . .	1,335	...	451	1,786	...	...	66	66	1,852
Baluchistan	SorRange . .	21	...	...	21	...	...	...	...	21
	Khost . . .	88	4	3	95	...	...	...	...	95
	Total . . .	109	4	3	116	...	...	...	..	116
Bengal . . .	Raniganj . .	34,605	113	9,059	43,777	5,783	42	3,226	9,001	52,788
Bihar and Orissa.	Raniganj . .	4,111	66	982	5,159	688	34	580	1,302	6,461
	Jharia . . .	44,345	657	15,109	60,111	7,358	393	5,364	13,115	73,226
	Bokaro . . .	2,828	5,345	1,575	9,748	216	1,075	249	1,540	11,288
	Giridih . . .	5,406	150	963	6,519	453	136	239	828	7,347
	Karanpura . .	885	721	549	2,155	148	222	161	531	2,686
	Hingir-Rampur	131	...	39	170	...	...	13	23	193
	Jainty . . .	404	..	180	584	34	...	19	53	637
	Total . . .	58,110	6,939	19,397	84,446	8,897	1,860	6,635	17,392	101,833
Central Provinces.	Ballavpur . .	2,551	60	565	3,176	193	...	91	289	3,465
	Pench Valley .	6,003	13	2,095	8,111	785	21	696	1,502	9,613
	Total . . .	8,554	73	2,660	11,287	983	21	787	1,791	13,078
Punjab	Salt Range . .	1,300	60	710	2,070	...	...	...	..	2,070
	Grand Total .	104,013	7,189	32,280	143,482	15,613	1,923	10,714	23,250	171,732

DIX I.

No. I.-A.

on a day in the selected week in February 1934.

Total number prevented from attending.									
Males.				Females.				Total Males and Females.	Grand Total.
Under-ground.	O. W.	Surface.	Total.	Under-ground.	O. W.	Surface.	Total.		
426	..	63	489	..	..	34	34	523	1,061
81	..	38	119	..	..	..	..	119	583
507	..	101	608	..	..	34	34	642	2,494
..	..	..	..	..	..	..	..	..	21
34	..	..	34	..	..	..	..	34	129
34	..	..	34	..	..	..	..	34	150
3,810	26	700	4,536	1,255	22	351	1,628	6,164	58,942
283	9	27	269	41	2	35	78	347	6,808
1,407	95	669	2,111	294	8	343	645	2,756	75,982
194	218	138	550	8	112	16	136	686	11,974
1,415	13	203	1,636	203	19	67	289	1,925	9,272
39	45	25	109	14	18	7	39	148	2,834
..	..	..	..	..	..	..	..	..	193
4	..	1	5	2	..	..	2	7	644
3,292	320	1,068	4,680	562	159	468	1,189	5,869	107,707
251	19	11	275	39	..	1	40	315	3,780
662	..	72	734	91	..	22	113	847	10,470
913	13	83	1,009	130	..	23	153	1,162	14,240
149	..	8	157	..	..	..	..	157	2,227
8,705	359	1,960	11,024	1,947	181	876	3,004	14,028	185,760

DIX I—contd.

No. 2.

each important mining field during the year 1933.

Overmen and Sirdars. — Foremen and Mates.	Open workings.					Surface.			
	Miners.	Loaders.	Skilled Labour.	Unskilled Labour.	Females.	Clerical and Supervising Staff.	Skilled Labour.	Unskilled Labour.	Females.
47	43	45	46	47	44	53	52	51	51
48	43	41	39	44	46	53	51	50	49
42	31	36	42	31	32	46	41	43	10
...	...	...	..	...	...	51	47	46	47
42	42	42	...	...	...	43	44	41	54
...	...	...	...	...	...	36	42	36	...
...	...	...	48	48	48	52	52	52	50
40	40	...	43	42	37	47	47	48	50
43	44	...	44	44	44	47	44	45	45
48	48	..	48	39	44	49	49	46	45
49	48	...	49	49	49	48	48	48	47
48	48	..	44	48	48	48	48	48	48
47	...	...	...	47	...	54	54	51	...
51	47	...	51	48	43	47	41	47	35
54	54	...	...	...	24	54	46	46	...
44	39	...	44	41	10	46	44	46	44
47	42	...	51	47	...	48	48	48	...
48	45	...	46	47	45	48	42	46	43

Table

Analysis of figures relating to

Province.	Coalfield.	Coal.					
		Opening stock.	Raisings.	Total.	Despatches.	Colliery consumption.	Coal delivered for coking.
		Tons.	Tons.	Tons.	Tons.	Tons.	Tons.
Assam . . .	Makum . . .	...	164,176	164,176	151,259	10,019	2,898
	Nazira . . .	892	27,624	28,516	26,879	1,461	..
	Sibsagar . . .	...	236	236	150	..	...
Baluchistan . . .	Baluchistan . . .	1,091	9,141	10,232	8,603	...	...
Bengal (and part of Bihar and Orissa).	Raniganj . . .	487,546	6,265,703	6,753,249	5,999,683	401,668	55,788
Bihar and Orissa.	Jharia . . .	1,056,205	8,014,949	9,071,154	6,748,925	445,846	1,194,825
	Bokaro . . .	10,825	1,304,864	1,315,689	1,219,166	52,963	15,775
	Karanpura . . .	3,375	343,876	347,251	326,914	8,177	...
	Giridih . . .	63,530	635,924	699,454	579,172	20,667	...
	Jainty . . .	910	43,530	44,440	33,613	9,485	...
	Hingir-Rampur . . .	33	22,036	22,069	18,068	2,925	...
Central Provinces.	Pench Valley . . .	15,099	978,179	993,278	918,692	62,762	...
	Chanda . . .	3,030	256,344	259,374	238,036	19,405	...
Punjab . . .	Salt Range . . .	3,712	94,099	97,811	91,552	3,199	...
	Total 1933 . . .	1,646,218	18,160,681	19,806,929	16,355,185	1,038,617	1,269,286

DIX I—contd.

No. 3.

the output of Coal and Coke, 1933.

		Coke.									
Coal des- patched to coke fac- tories.	Closing stocks.	Opening stocks.		Coke made.		Despatches.		Colliery con- sumption.		Closing stocks.	
		Hard.	Soft.	Hard.	Soft.	Hard.	Soft.	Hard.	Soft.	Hard.	Soft.
Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.
...	...	...	...	556	..	591	...	25	...	...	...
...	176	...	...	...	...	..	...	...	...	...	...
...	86	...	...	...	...	...	...	...	...	...	...
...	1,629	...	...	...	...	...	...	...	...	...	...
...	296,110	...	1,310	2,722	36,572	2,196	36,428	...	485	526	969
1,340,189	687,118	13,859	9,386	60,527	784,429	61,331	783,984	360	743	12,195	9,788
...	27,783	868	221	5,466	3,164	5,925	3,361	16	...	398	24
...	12,160	...	...	...	...	...	...	...	...	...	...
28,710	99,614	...	...	...	...	...	...	...	...	...	...
...	1,342	...	...	...	...	...	...	...	...	...	...
...	1,056	...	...	...	...	...	...	...	...	...	...
...	11,824	...	...	...	...	...	...	...	...	...	...
...	1,993	...	...	...	...	...	...	...	...	...	...
...	3,060	...	...	...	...	...	...	...	...	...	..
1,368,899	1,143,891	14,227	10,917	69,271	824,165	69,983	823,078	401	1,228	13,114	10,781

APPENDIX I—contd.

Table No. 4.

Numbers of mines opened, closed and inspected, during the year 1933.

PROVINCE.	District and mineral field.	Number of mines under the scope of the Act.	NUMBER OF MINES.				INSPECTIONS.	
			Worked under mechanical power.	Not worked by mechanical power.	Opened during the year.	Closed during the year.	Number of mines inspected.	Number of inspections.
COAL.								
Assam . . .	Lakhimpur—Makum Coalfield	5	5	...	...	...	5	21
	Naga Hills—Nazira	1	1	...	...	...	1	6
	Sibsagar	1	...	1	1	1	...	...
Baluchistan . . .	Baluchistan Coalfield	15	...	15	3	9	17	17
Bengal (and part of Bihar and Orissa).	Baniganj Coalfield	185	150	35	7	17	195	810
Bihar and Orissa.	Jharia Coalfield	219	165	54	24	20	228	1,269
	Bokaro	5	5	...	...	...	5	20
	Karanpura Coalfield	5	3	2	1	...	3	13
	Giridih Coalfield	6	3	3	...	1	6	28
	Jainty	8	1	7	1	2	7	9
	Hingir-Rampur Coalfield	1	1	...	...	...	1	1
Central Provinces.	Pench Valley Coalfield	25	14	11	5	5	22	33
	Chanda Coalfield	7	7	...	1	...	6	11

APPENDIX I—*contd.*Table No. 4—*contd.*Numbers of mines opened, closed and inspected, during the year 1933—*contd.*

PROVINCE.	District and mineral field.	Number of mines under the scope of the Act.	NUMBER OF MINES.				INSPECTIONS.	
			Worked under mechanical power.	Not worked by mechanical power.	Opened during the year.	Closed during the year.	Number of mines inspected.	Number of inspections.
			COAL—<i>contd.</i>					
Punjab . . .	Salt Range Coalfield . . .	18	...	18	5	5	18	15
	Grand Total (Coal) for 1933 .	501	355	146	48	60	509	2,253
	Grand Total of preceding year.	515	361	154	50	58	531	2,129
	Difference .	-14	-6	-8	-2	+2	-22	+121
			IRON ORE.					
Bihar and Orissa	Singhbhum	2	...	2	...	...	2	3
Burma . . . . .	... . . . .	3	...	3	...	...	1	1
	Grand Total (Iron Ore) for 1933	5	...	5	...	...	3	4
	Grand Total of preceding year.	5	...	5	3	...	4	7
	Difference .	...	...	...	-3	...	-1	-3
			MANGANESE ORE.					
Bihar and Orissa	Singhbhum	4	...	4	3	...	3	3
Bombay	Panch Mahals	2	1	1	...	...	...	...

APPENDIX I—*contd.*Table No. 4—*contd.*Numbers of mines opened, closed and inspected, during the year 1933—*contd.*

PROVINCE.	District and mineral field.	Number of mines under the scope of the Act.	NUMBER OF MINES.				INSPECTIONS.	
			Worked under mechanical power.	Not worked by mechanical power.	Opened during the year.	Closed during the year.	Number of mines inspected.	Number of inspections.
MANGANESE ORE—<i>contd.</i>								
Central Provinces.	... . . . .	6	...	6	2	2	4	5
Madras	... . . . .	5	1	4	2	...	5	5
	Grand Total (Manganese Ore) for 1933.	17	2	15	7	2	12	13
	Grand Total of preceding year.	23	2	21	8	12	21	31
	Difference	-6	...	-6	-1	-10	-9	-18
LEAD ORE.								
Burma	... . . . .	2	2	...	...	...	2	12
	Total of preceding year	2	2	...	...	...	1	3
	Difference	...	...	...	...	...	+1	+9
GOLD.								
Bihar and Orissa	... . . . .	3	...	3	2	...	1	1
Burma	... . . . .	1	...	1	...	...	2	2
	Grand Total (Gold) for 1933	4	...	4	2	...	3	3
	Grand Total of preceding year.	3	...	3	3	..	1	2
	Difference	+1	...	+1	-1	..	+2	+1

APPENDIX I—*contd.*Table No. 4—*contd.*Numbers of mines opened, closed and inspected, during the year 1933—*contd.*

PROVINCE.	District and mineral field.	Number of mines under the scope of the Act.	NUMBER OF MINES.				INSPECTIONS.	
			Worked under mechanical power.	Not worked by mechanical power.	Opened during the year.	Closed during the year.	Number of mines inspected.	Number of inspections.
TIN AND WOLFRAM ORE.								
Burma . . . . .	... . . . .	199	7	192	78	16	63	87
	Total of preceding year	138	3	135	57	21	43	52
	Difference	+61	+4	+57	+21	-5	+20	+35
CHROMITE ORE.								
Baluchistan	Zhob	4	...	4	4	...	4	4
Bihar and Orissa	Singhbhum	9	...	9	2	...	4	4
	Grand Total (Chromite Ore) for 1933.	13	...	13	6	...	8	8
	Grand Total of preceding year	9	...	9	3	1	5	5
	Difference	+4	...	+4	+3	-1	+3	+3
COPPER ORE.								
Bihar and Orissa	Singhbhum	2	2	...	1	...	2	4
	Total of preceding year	4	1	3	2	2	2	7
	Difference	-2	+1	-3	-1	-2	...	-3
GEMS.								
Burma	Katha	1	...	1	1	...	...	...
	Total of preceding year . . . . .	...	...	...	...	...	...	...
	Difference	+1	...	+1	+1	...	...	...

APPENDIX I—*contd.*Table No. 4—*contd.*Numbers of mines opened, closed and inspected, during the year 1933—*contd.*

PROVINCE.	District and mineral field.	Number of mines under the scope of the Act.	NUMBER OF MINES.				INSPECTIONS.	
			Worked under mechanical power.	Not worked by mechanical power.	Opened during the year.	Closed during the year.	Number of mines inspected.	Number of inspections.
MAGNESITE.								
Madras . . .	Salem	3	...	3	...	...	2	2
	Total of preceding year	4	...	4	2	...	1	1
	Difference . . .	-1	..	-1	-2	...	+1	+1
STEATITE.								
Bihar and Orissa.	... . . . .	4	...	4	2	...	2	2
Central Provinces.	Jubbulpore	3	...	3	1	1	...	...
Madras . . .	Nellore	2	...	2	...	...	2	2
United Provinces.	Hamirpur	9	...	9	7	3	17	26
	Grand Total (Steatite) for 1933	18	...	18	10	4	21	30
	Grand Total of preceding year	13	...	13	7	5	4	4
	Difference . . .	+5	...	+5	+3	-1	+17	+26

APPENDIX I—*contd.*Table No. 4—*contd.*Numbers of mines opened, closed and inspected, during the year 1933—*contd.*

PROVINCE.	District and mineral field.	Number of mines under the scope of the Act.	NUMBER OF MINES.				INSPECTIONS.	
			Worked under mechanical power.	Not worked by mechanical power.	Opened during the year.	Closed during the year.	Number of mines inspected.	Number of inspections.
SLATE.								
Bihar and Orissa.	...	11	...	11	5	1	5	5
Punjab	...	13	...	13	1	1	13	23
	Grand Total (Slate) for 1933	24	...	24	6	2	18	28
	Grand Total of preceding year	20	...	20	4	2	2	2
	Difference	+4	...	+4	+2	...	+16	+26
LIMESTONE.								
Bihar and Orissa.	...	10	...	10	1	1	8	9
Bombay	Sukkur	1	...	1	...	1	1	1
Burma	...	7	...	7	2	2	4	4
Central Provinces.	...	20	2	16	2	7	16	17
Punjab	...	5	1	4	1	2	7	12
	Grand Total (Limestone) for 1933	43	3	40	6	13	36	43
	Grand Total of preceding year	44	3	41	17	6	31	38
	Difference	-1	...	-1	-11	+7	+5	+5

APPENDIX I—contd.

Table No. 4—contd.

Numbers of mines opened, closed and inspected, during the year 1933—contd.

PROVINCE.	District and mineral field.	Number of mines under the scope of the Act.	NUMBER OF MINES.				INSPECTIONS.	
			Worked under mechanical power.	Not worked by mechanical power.	Opened during the year.	Closed during the year.	Number of mines inspected.	Number of inspections.
STONE.								
Bengal . . .	Birbhum	4	...	4	...	...	2	3
Bihar and Orissa.	... . . . .	59	...	59	8	6	46	47
Bombay . . .	... . . . .	21	2	19	8	...	18	18
Burma . . .	... . . . .	15	...	15	1	1	15	15
Central Provinces.	... . . . .	2	...	2	...	1	3	3
Madras . . .	... . . . .	16	...	16	9	4	12	12
Punjab . . .	... . . . .	12	...	12	..	1	9	12
United Provinces.	... . . . .	21	...	21	9	2	20	26
	Grand Total (Stone) for 1933 .	150	2	148	35	15	125	138
	Grand Total of preceding year .	140	4	136	44	22	111	139
	Difference .	+10	-2	+12	-9	-7	+14	-1
LATERITE.								
Burma . . .	Toungoo	1	...	1	...	...	...	...
Central Provinces.	Jubbulpore	3	.	3	1	...	...	...
	Grand Total (Laterite) for 1933	4	...	4	1	...	...	...
	Grand Total of preceding year .	4	...	4	1	...	4	5
	Difference .	...	.	...	.	...	-4	-5

APPENDIX I—contd.

Table No. 4—contd.

Numbers of mines opened, closed and inspected, during the year 1933—contd.

PROVINCE.	District and mineral field.	Number of mines under the scope of the Act.	NUMBER OF MINES.				INSPECTIONS.	
			Worked under mechanical power.	Not worked by mechanical power.	Opened during the year.	Closed during the year.	Number of mines inspected.	Number of inspections.
SANDSTONE.								
Bihar and Orissa.	Shahabad	3	...	3	1	...	4	4
Burma . . .	Toungoo	1	...	1	...	...	...	...
United Provinces.	... . . . .	4	..	4	3	...	4	4
	Grand Total (Sandstone) for 1933.	8	...	8	3	...	8	8
	Grand Total of preceding year.	7	...	7	1	...	5	5
	Difference	+1	...	+1	+2	...	+3	+3
FIRE CLAY.								
Bengal . . .	Burdwan	2	...	2	...	...	1	1
Bihar and Orissa.	... . . . .	7	...	7	4	...	4	5
Central Provinces.	Jubbulpore	2	1	1	...	...	2	2
	Grand Total (Fire Clay) for 1933	11	1	10	4	...	7	8
	Grand Total of preceding year.	8	...	8	2	2	9	12
	Difference .	+3	+1	+2	+2	-2	-2	-4

APPENDIX I—*contd.*Table No. 4—*contd.*Numbers of mines opened, closed and inspected, during the year 1933—*contd.*

PROVINCE.	District and mineral field.	Number of mines under the scope of the Act.	NUMBER OF MINES.				INSPECTIONS.	
			Worked under mechanical power.	Not worked by mechanical power.	Opened during the year.	Closed during the year.	Number of mines inspected.	Number of inspections.
Bihar and Orissa.	...	7	...	7	3	2	5	5
Burma	Thaton	1	...	1	1	..	...	..
Delhi	Delhi	8	...	8	5	6	7	13
Rajputana	Ajmer-Merwara	1	...	1	...	...	1	2
	Grand Total (China Clay) for 1933.	17	...	17	9	8	13	20
	Grand Total of preceding year	6	...	6	1	1	3	3
	Difference	+11	...	+11	+8	+7	+10	+17
					CLAY.			
Assam	Lakhimpur	1	...	1	1	...	...	...
Bengal	Burdwan	1	1	...	...	...	...	...
Central Provinces.	Jubbulpore	1	...	1	...	...	...	...
	Grand Total (Clay) for 1933	3	1	2	1	...	...	...
	Grand Total of preceding year	3	1	2	1	1	2	3
	Difference	...	...	...	...	-1	-2	-3

APPENDIX I--contd.

Table No. 4--contd.

Numbers of mines opened, closed and inspected, during the year 1933--contd.

PROVINCE.	District and mineral field	Number of mines under the scope of the Act.	NUMBER OF MINES.				INSPECTIONS.	
			Worked under mechanical power.	Not worked by mechanical power.	Opened during the year.	Closed during the year.	Number of mines inspected.	Number of inspections.
OCHRE.								
Central Provinces.	Chanda	1	...	1	...	...	1	1
United Provinces.	Banda	1	...	1	...	...	1	1
	Grand Total (Ochre) for 1933	2	...	2	...	...	2	2
	Grand Total of preceding year.	3	...	3	...	1	2	2
	Difference .	-1	...	-1	...	-1	...	...
BARYTES.								
Madras . . . . .	... . . . .	8	...	8	3	...	5	5
	Total of preceding year . . .	7	...	7	3	...	4	4
	Difference .	+1	...	+1	...	...	+1	+1
APATITE.								
Madras	Trichinopoly	1	...	1	...	1	...	...
	Total of preceding year . . .	1	...	1	...	...	...	...
	Difference . . .	...	...	...	...	+1	...	...

APPENDIX I—*contd.*Table No. 4—*concl'd.*Numbers of mines opened, closed and inspected, during the year 1933—*concl'd.*

PROVINCE.	District and mineral field.	Number of mines under the scope of the Act.	NUMBER OF MINES.				INSPECTIONS.	
			Worked under mechanical power.	Not worked by mechanical power.	Opened during the year.	Closed during the year.	Number of mines inspected	Number of inspections.
			BERYL.					
Rajputana	Ajmer-Merwara	2	.	2	1	2	2	3
	Total of preceding year . .	2	.	2	1	..	..	..
	Difference . . . . .	...	...	...	...	+2	+2	+3
			FELSPAR.					
Rajputana	Ajmer-Merwara	4	..	4	2	...	2	3
	Total of preceding year . .	1	...	1	...	...	...	...
	Difference	+3	...	+3	+2	...	+2	+3
			SAND.					
Bengal	Burdwan	1	...	1	1	...	...	...
Central Provinces.	Jubbulpore	1	..	1	1	..	...	...
	Grand Total (Sand) for 1933 .	2	...	2	2	...	...	...
	Difference	+2	...	+2	+2	...	...	...
	Grand Total (Metalliferous Mines) for 1933.	923	39	884	376	183	422	521
	Grand Total of preceding year .	766	45	721	293	190	282	357
	Difference	+157	-6	+163	+78	-7	+140	+164
	Grand Total (All Minerals) for 1933	1,424	394	1,030	424	243	931	2,774
	Grand Total of preceding year	1,281	406	875	348	248	813	2,456
	Difference	+143	-12	+155	+76	-5	+118	+288

APPENDIX I—*contd.*

Table No. 5.

The following table shows the fluctuations in the output of the principal mineral raised from mines classed under the Indian Mines Act. The other minerals raised are slate, magnesite, steatite, clay, fuller's earth, ochre, barytes, apatite, stone, kyanite, gypsum, felspar and beryl.

Year.	Coal.	Manga- nese ore.	Mica.	Lime- stone.	Salt.	Gold.	Copper ore.	Wolfram ore.	Iron ore.	Chro- mite ore.	Tin ore.	Lead ore.	Silver.
	Tons.	Tons.	Cwts.	Tons.	Tons.	Troy ozs.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Troy. ozs.
1924	20,356,034	668,331	40,529	513,333	159,918	3,046	38	739	430,805	27,850	1,627	310,286	5,257,060
1925	19,969,041	710,347	45,383	614,232	125,366	28	...	772½	529,376	21,230	2,307	331,854	4,831,569
1926	20,093,024	857,099	41,451	827,222	123,801	1,053	9,508	751	600,363	16,465	2,568	362,904	5,103,705
1927	21,108,976	878,521	42,081	1,132,235	145,311	2,395	5,010	530	1,068,281	17,086	2,656	450,777	6,004,586
1928	21,515,796	716,620	44,029	1,404,578	145,543	7	18,055	622	1,206,754	17,167	2,777	443,654	7,404,728
1929	22,308,174	750,908	49,437	1,313,647	148,406	30	76,831	1,061	1,436,385	21,054	3,384	464,561	7,280,517
1930	22,683,861	623,678	52,519	1,143,312	147,276	30	123,740	1,509	1,132,863	30,488	3,001	530,119	7,054,206
1931	20,514,597	347,373	46,177	862,226	134,916	..	153,636	969	590,176	14,938	2,552	397,679	5,900,400
1932	18,719,587	88,119	32,643	725,378	150,286	50	175,375	848	673,434	7,866	2,957	372,566	5,998,056
1933	18,160,681	83,240	41,005	1,120,110	145,638	267	201,722	836	653,239	9,770	3,309	454,791	6,054,000

Table No. 6.

The following table shows the amount of coal raised, the average number of persons working daily and the death-rates during the years 1924 to 1933 in respect of coal mines under the Indian Mines Act :—

Year.	Amount of coal raised.	Average number of persons work- ing daily below and above ground.	Number of deaths below and above ground.	Death-rates.	
				Per 1,000,000 tons raised.	Per 1,000 per- sons working daily below and above ground.
1924	Tons. 20,356,034	197,088	230	11.35	1.23
1925	19,969,041	173,140	186	9.31	1.07
1926	20,093,024	170,628	171	8.51	1.00
1927	21,108,976	165,213	181	8.57	1.10
1928	21,515,796	164,139	218	10.13	1.33
1929	22,308,174	165,658	194	8.70	1.17
1930	22,683,861	169,001	211	8.30	1.25
1931	20,514,597	158,267	185	9.02	1.17
1932	18,719,587	148,489	151	8.07	1.02
1933	18,160,681	144,707	124	6.83	0.86

APPENDIX I—*contd.*

Table No. 7.

Aggregate horse power and purpose for use of electric motors installed both on surface and underground at coal mines under the Indian Mines Act.

Coalfield.	Horse power on surface.					Horse power below ground.					Total horse power of motors installed.	
	Winding.	Ventilation.	Haulage.	Coal washing or screening.	Miscellaneous.	Total.	Haulage.	Pumping.	Portable machinery.	Miscellaneous.		Total.
Assam . . . . .	...	117	185	7	51	360	60	...	...	...	60	420
Bokaro	723	300	250	137	1,042	2,452	390	1,146	...	145	1,681	4,133
Central Provinces . . . . .	...	65	92	...	74	231	65	550	101	2	718	949
Giridih	165	370	...	335	442	1,212	799	3,048	121	2	3,970	5,182
Jharia	2,831	945	1,522	963	1,465	7,726	7,467	18,437	2,326	1,424	19,654	37,380
Karainpura . . . . .	...	75	750	95	302	1,223	...	370	...	...	370	1,592
Punjab . . . . .	...	...	25	...	...	25	...	12	...	...	12	37
Raniganj	2,035	1,165	530	713	456	4,899	5,675	11,233	2,789	141	19,838	24,737
Total	5,754	3,037	3,354	2,150	3,832	18,127	14,456	34,796	5,337	1,714	56,303	74,430

Table No. 8.

Number of Mines under the Indian Mines Act, where electric power is used, and the aggregate horse power of electric motors installed.

Province.	Minerals worked.						Total horse power of motors installed.
	Coal.		Silver-Lead.		Sundry Minerals.		
	Number of mines.	Horse power.	Number of mines.	Horse power.	Number of mines.	Horse power.	
Assam	3	420	...	...	...	...	420
Bengal	48	22,960	...	...	1	50	23,010
Bihar and Orissa	61	50,064	...	...	3	2,136	52,200
Bombay . . . . .	...	...	...	...	1	169	169
Burma . . . . .	..	...	2	3,817	4	1,232	5,049
Central Provinces	7	949	.	...	3	552	1,501
Madras . . . . .	...	...	...	...	2	209	209
Punjab	1	87	...	...	2	1,004	1,041
Total	120	74,430	2	3,817	16	5,352	83,599

APPENDIX I—*contd.*

Table No. 9.

Number and type of coal-cutting machines at work in Coal Mines under the Indian Mines Act.

Name of machine.	British.	American.	Chain.	Bar.	Perussive.	Power.		Total number of machines.
						Electricity.		
						A. C.	D. C.	
Goodman . . . . .	..	55	55	..	..	38	17	55
Hardy	6	..	..	..	6	6	.	6
Mavor and Conlson	41	..	20	21	..	40	1	41
Sullivan . . . . .	..	3	3	..	..	3	..	3
Total	47	58	78	21	6	87	18	105

Jharia coalfield 32 machines } Total number of square feet
 Raniganj coalfield 70 " } undercut 69,80,646.
 Central Proviuces coalfield 3 " }

Table No. 10.

Number of mechanical ventilators in use at Coal Mines under the Indian Mines Act.

Assam.	Baluchistan.	Bengal.	Bihar and Orissa.	Central Provinces	Punjab.	Total.
8	..	25	45	10	..	88

Table No. 11.

Number of safety lamps in use at Coal Mines under the Indian Mines Act.

Assam.	Baluchistan.	Bengal.	Bihar and Orissa.	Central Provinces.	Punjab.	Total.
1,519	10	10,602	8,969	..	3	21,094

140 were locked by screws, 7,534 by lead rivets and 13,420 by magnetic means.

APPENDIX I—concl'd.

Table No. 12.

Statement of explosives used during the year 1933 at mines under the Indian Mines Act.

Name of explosives.	Quantity of explosives used, in lb., in:—								Total.
	Coal mines.	Mica mines.	Manga- nese mines.	Lead ore mines.	Tin and Wolfram ore mines.	Lime- stone mines.	Stone mines.	Other mines.	
Dynamite . . .	25,000	57,683	396	...	7,978	2,575	14,986	17,520	126,138
Gelignite . . .	39,112	23,312	812	162,547	10,049	5,907	10,142	369,615	621,496
Monobel . . .	8,613	.	...	...	...	450	...	...	9,263
Stonobel . . .	74,329	...	...	...	...	...	...	...	74,329
Dynobel . . .	170	...	...	...	...	...	...	..	170
Bobbinite . . .	1,240	...	...	...	...	...	...	...	1,240
Samsonite . . .	250	...	...	...	...	...	...	...	250
Liquid Oxygen . .	74,355	...	...	...	...	...	..	...	74,355
Gunpowder . . .	1,977,575	8,605	3,843	.	150	196,185	120,306	127,130	2,433,794
Picric Powder . .	...	...	...	..	...	...	1,199	...	1,199
Number of detonators used.	517,200	678,064	9,254	274,361	75,316	15,201	91,526	498,014	2,158,936

APPENDIX II.
ACCIDENTS IN MINES.

Table No. 1.
Fatal Accidents during the year 1933.

Serial number.	Date and hour of accident.	Name and situation of mine.	Name of owner.	Name, sex, age and occupation of person killed.	Name of mineral worked.	Cause of accident and remarks.
EXPLOSIONS AND IGNITIONS OF FIRE-DAMP—(6 deaths).						
1	19th October, 11-30 A.M.	Jamadoba mine, Jealgora P.O., Bihar and Orissa.	Tata Iron & Steel Co., Ltd.	Keso Singh, (m.), 30; Jadu Ray, (m.), 25; Madan Kahar, (m.), 24, Chairmen.	Coal	The deceased, with an open light, entered a gallery 25 feet long and rising at 1 in 3, and ignited an accumulation of firedamp. They were severely burnt and subsequently died. Inspection and inquiry made.
2	9th November, 4-20 P.M.	Aldih mine, Sitarampur P.O., Bengal.	Aldih Coal Co., Ltd.	Ghanshyam Roy, (m.), 28; Budhan Meah, (m.), 26; Paras Chamar, (m.), 24, Coal-cutters.	Coal	While nine miners were at work in a depillaring area inflammable gas was expelled from adjacent goaf by a fall of roof. The gas was ignited by their naked lights and they were all severely burnt. Three of them afterwards died. Inspection and inquiry made.
FALLS OF ROOF AND SIDES.						
(a) Falls of roof—(40 deaths).						
3	4th January, 1 P.M.	Joyrampur mine, Jharia P.O., Bihar and Orissa.	Joyrampur Coal Co.	Dami Baurin, (f.), 22, Loader.	Coal	While a coal-loader was filling a basket with coal near the face of a gallery 6 feet high a mass of sandstone, 4'-6" x 1'-6" x 1'-3", fell from a "slip" in the roof and killed her instantly. Inspection and inquiry made.

4	28th January, 7 P.M.	Kendwadih mine, Kusunda P.O., Bihar and Orissa.	East Indian Coal Co., Ltd.	Prem Bahidas, (m.), 35, <i>Coal-cutter.</i>	Coal	On returning into a gallery after a shot had been fired, a miner was struck and fatally injured by a mass of stone which fell from a height of 10 feet. Inspection and enquiry made.
5	7th February, about 5 P.M.	Hindu Chaung mine, Tavoy P.O., Burma.	Tavoy Tin Dredg- ing Corporation, Ltd.	Leon Hein, (m.), 30; Kyon Hein, (m.), 40. <i>Tribute Miners.</i>	Tin	While working in an underground gallery 7'-6" below the surface two tribute miners were killed instantly when a mass of roof 15' x 5'-6" x 2'-6" fell from a height of 3'-6". Inspection and inquiry made.
6	14th February, 12-5 P.M.	Tikak mine, Margherita P. O., Assam.	Assam Railways and Trading Co., Ltd.	Budhiram Miri. (m.), 34, <i>Labourer.</i>	Coal	While at work in an "opening" or chamber, a labourer was struck by a piece of coal, 3' x 2' x 2' which fell from a "slip" in the roof at a height of 4½ feet. He was fatally injured. Inspection and inquiry made.
7	21st February, 5 P.M.	Amlabad mine, Jealgora P.O., Bihar and Orissa.	Eastern Coal Co., Ltd.	Jugal Mahato, (m.), 35, <i>Coal-cutter.</i>	Coal	Deceased was dressing roof coal in a gallery, when a mass of coal 14' x 10' x 3' fell from between two converging "slips" at a height of 7 feet. He was killed instantly. Inspection and inquiry made.
8	1st March, 12-30 P.M.	Ledo-Valley mine, Margherita P. O., Assam.	Assam Railways and Trading Co., Ltd.	Kader Bux, (m.), 39, <i>Coal-cutter.</i>	Coal	While working in an "opening" or chamber, 26' x 24', a miner was killed by a mass of coal, 9' x 4' x 8', which fell unexpectedly from a height of 13 feet. Inspection and inquiry made.
9	19th March, 10 A.M.	Barwabera mine, Nawagarh P. O., Bihar and Orissa.	S. C. Mazumdar (Receiver), B. Trigunait and Brothers.	Chutu Kamar, (m.), 36, <i>Coal-cutter.</i>	Coal	Deceased was cutting coal on the edge of an old goaf, when a mass of coal, 12' x 3' x 2', fell on him from between two "slips" at a height of 12 feet. He was killed on the spot. Inspection and inquiry made.
10	24th March, 11 A.M.	Alkusa and Nyadee mine, Kusunda P. O., Bihar and Orissa.	Alkusa and Nyadee Collieries, Co.	Phulchand Mahto, (m.), 46, <i>Coal-car- rier.</i>	Coal	Deceased passed through a fence when a triangular mass of coal, 6' x 6' x 1' thick fell on him from two converging "slips" at a height of 2½ feet. He sustained serious injuries to which he succumbed three hours later. Inspection and inquiry made.
11	31st March, 4 30 A.M.	Akhalpur mine, Char- anpur P. O., Bengal.	Hurriladih Coal Company, Ltd.	Budhan Kole, (m.), 22, <i>Loader.</i>	Coal	While a miner was sitting near the face of a gallery, in which a stone band in a seam 10 feet thick had been undercut, he was struck by a mass of stone, 10' x 3'-4" x 1'-4", which fell from a height of 4 feet. He was killed instantly. Inspection and inquiry made.
12	1st April, 1 P.M.	Poniati mine, Charan- pur P. O., Bengal.	Poniati Collieries, Ltd.	Matla Manjhi, (m.), 22, <i>Coal-cutter.</i>	Coal	While two miners were working in a gallery, a mass of coal 15' x 3' x 3', fell from the two "slips" in the roof and seriously injured them. One of them afterwards succumbed to his injuries. As the "slips" were exposed the roof should have been properly supported. If this had been done the accident would have been avoided. Inspection and inquiry made.

APPENDIX II—contd.

Fatal Accidents during the year 1933—contd.

Serial number.	Date and hour of accident.	Name and situation of mine.	Name of owner.	Name, sex, age and occupation of person killed.	Name of mine worked.	Cause of accident and remarks.
FALLS OF ROOF AND SIDES—contd.						
(a) Falls of roof—contd.						
13	10th April, 11-30 A.M.	Upper Ghorawari mine, Junnerdeo P.O., Central Provinces.	Bishambharnath Buddholal & Co.	Sutnoo Lodhe, (m), 30, Coal-cutter.	Coal	While surreptitiously engaged in cutting the roof coal from a disused gallery, a miner was fatally injured by a mass of coal about 15' x 3' x 3'-6" thick, which fell on him from a height of 7 feet. Inspection and inquiry made.
14	27th April, 1-15 P.M.	Muslia mine, Kalipahari P.O., Bengal.	Ghoseck & Muelia Collieries, Ltd.	Tarka Manjhi, (m), 30, Coal-cutter.	Coal	A miner was killed instantly when a mass of roof stone, 25' x 8' x 1'-3" thick, fell from a height of 7 feet. The stone broke away from a "slip" and a smooth parting and gave no warning. Inspection and inquiry made.
15	30th April, 1 P.M.	Dandot (No. 1 South) mine, Dandot P.O., Punjab.	The Executors of the Estate of late Lala Shanker Das.	Mahiya, (m), 37, Labourer.	Coal	While packing a goaf deceased was killed by a fall of roof in a coal seam 1'-9" thick. Inspection and inquiry made.
16	19th May, 5-45 A.M.	Budroochuck mine, Sijua P.O., Bihar and Orissa.	Budroochuck Coal Mining Co., Ltd.	Selga Manjhi, (m.), 36, Coal-cutter.	Coal	Deceased was standing in a gallery 14 feet high, when a mass of roof coal, 6' x 5' x 1' thick, on which he had been working, fell unexpectedly from a "slip". Another person was seriously injured. Inspection and inquiry made.
17	22nd May, 2-45 P.M.	Standard (Jharia Khas Section) mine, Jharia P.O., Bihar and Orissa.	Standard Coal Co., Ltd.	Rakhal Gorai, (m.) 29, Coal-cutter.	Coal	While two miners were resting on a loading level, weighing in a depillaring area 20 feet away caused pieces of roof shale weighing about 2 cwts to fall from the roof at a height of 26 feet. Both men were seriously injured and one afterwards died. Inspection and inquiry made.
18	3rd June, 3-30 A.M.	Lodna mine, Jharia P.O., Bihar and Orissa.	Lodna Colliery Co. (1920), Ltd.	Samboo Kora, (m), 26, Coal-cutter.	Coal	While a miner was loading coal in a fenced area in the presence of the sirdar, a mass of roof-stone 5' x 5' x 6', fell from a height of 7 feet, inflicting fatal injuries. The sirdar was not authorised to permit him to work there. Inspection and inquiry made.

19	16th June, 2-30 A.M.	Ghorawari mine, Junnordeo P.O., Central Provinces.	Hirdagarh Collieries, Ld.	Bhayalal Gond, (m.), 32, Coal-cutter.	Coal	In the course of dressing down roof coal, deceased, who was showing a light, failed to keep clear when a piece, larger than what they had anticipated, became dislodged. He sustained a fracture of the spine and died within twenty-four hours. Inspection and inquiry made.
20	14th July, 2 P.M.	Chanck mine, Chirkunda P.O., Bihar and Orissa.	Bengal Coal Co., Ld	Churki Mejhian, (f.), 38, Labourer.	Coal	While deceased was loading a basket of coal in a depillaring area she was killed by a mass of roof coal, 6' x 5' x 2', which fell suddenly from a height of 10 feet. Inspection and inquiry made.
21	28th July, 10-15 A.M.	Thani mine, Kodarma P. O., Bihar and Orissa.	Tata Sons, Ld.	Bihari Mushahar (m.), 36, Miner.	Mica	Contrary to instructions a miner entered a disused mica mine and while at work was killed instantly by a piece of rock 3' x 2' x 1' which fell from the roof at a height of 6 feet. Inspection and inquiry made.
22	28th August, 11 P.M.	Barmondia mine, Sitarampur P. O., Bengal.	New Beerbhoom Coal Co., Ld.	Sona Meah, (m.), 40, Coal-cutter.	Coal	While loading coal a miner was pinned beneath a large stone which fell without warning from the 'goaf'. Life was extinct when his body was recovered. If the fancing had been set further back from the 'goaf' edge this accident might have been prevented. Inspection and inquiry made.
23	30th August, 3-30 P.M.	Sarakdih mine, Sitarampur P. O., Bengal.	B. N. Sanyal, Ld.	Gendi Korani, (f), 22, Coal-carrier.	Coal	While working in a gallery, which was fenced deceased was killed by a mass of roof stone, about 3'-6" x 2'-3" x 4" thick, that fell on her from a height of 4 feet. Inspection and inquiry made.
24	1st September, 5 A.M.	Jamuria mine, Charanpu P. O., Bengal.	Equitable Coal Co., Ld.	Charitar Dosadh, (m), 45, Loader.	Coal	While loading coal in a gallery where roof coal was being dressed, a loader was struck on the head by a piece of coal, which fell from the roof at a height of 7 feet. He was fatally injured. Inspection and inquiry made.
25	7th September, 11-30 P.M.	Serampur mine, Giridih P. O., Bihar and Orissa.	East Indian Railway (Government of India, Railway Department).	Monji Dosadh, (m.), 38, Coal-cutter.	Coal	A miner who left his allotted working place and went through a fence into an old goaf was killed instantly by a mass of stone 10' x 3' x 6" which fell from a "slip" in the roof at a height of 16 feet. Inspection and inquiry made.
26	14th September, 4 P.M.	Kusunda mine, Kusunda P. O., Bihar and Orissa.	K. M. Selected Coal Co.	Nidhi Baurin. (f.), 20, Coal-carrier.	Coal	Deceased was loading coal in a gallery, when a mass of roof coal, 12' x 2'-3" x 1', fell on her from a height of 12 feet, killing her instantly. Inspection and inquiry made.
27	2nd October, 9-15 P.M.	Bawdwinmine, Namtu P. O., Burma.	Burma Corporation, Ld.	Chang Yn Pin, (m.), 33, Miner.	Silver-lead zinc.	While holding up the end of a spiling board a miner was seriously injured by a large piece of rock which fell on the spiling board. He died about three months afterwards from the effect of the injuries. Inspection and inquiry made.

APPENDIX II—contd.

Fatal Accidents during the year 1933—contd.

Serial number.	Date and hour of accident.	Name and situation of mine.	Name of owner	Name, sex, age and occupation of person killed.	Name of mineral worked.	Cause of accident and remarks.
FALLS OF ROOF AND SIDES—contd.						
(a) Falls of roof—contd.						
28	13th October, 4 P.M.	Poniati mine, Charanpur P. O., Bengal.	H. K. Nag	Ramsarup Passi, (m), 40, Coal-cutter.	Coal	While a miner was dressing roof coal from a ladder, a piece of coal, 4' x 2' x 3', fell from a height of 14 feet, and struck another miner who was standing at the foot of the ladder, killing the latter instantly. Inspection and inquiry made.
29	18th October, 4-30 P.M.	Burra Dheimo mine, Sitarampur P. O., Bengal.	Burra Dheimo Coal Co., Ltd.	Pouu Roy, (m), 29, Loader.	Coal	While a loader was filling a basket with coal in a depillaring area a "bump" occurred and caused a mass of coal weighing about 12 cwts. to fall from the roof and side. He was struck by the falling coal and killed instantly. Inspection and inquiry made.
30	14th October, 1 A.M.	Jamuria mine, Charanpur P. O., Bengal.	Equitable Coal Co., Ltd.	Dukhia Chamar, (m), 41, Loader.	Coal	During the temporary absence of a stonedresser, a coal loader entered a gallery where some roof stone was about to be blasted down, when a piece of stone, 6'-6" x 3' x 1', fell from a height of 7 feet and seriously injured him. He died five days later as the result of his injuries. Inspection and inquiry made.
31	20th October, 2 A.M.	Kurhurbaree mine, Girdh P. O., Bihar and Orissa.	East Indian Rail- way. (Govt. of India, Railway Depart- ment.)	Shamlal Chamar, (m), 34, Dinoo Chamar, (m), 24, Coal-cutters.	Coal	While a number of miners were engaged in the extraction of two small pillars of coal, a mass of stone, 34' x 11' x 2', fell from between two parallel "slips" in the roof at a height of 12 feet. Two of the miners were killed instantly while a third was seriously injured. Inspection and inquiry made.
32	23rd October, 3-15 P.M.	Bagdiggi mine, Jharia P. O., Bihar and Orissa.	Anderson Wright & Co.	Etwari Bilaspuri, (m), 30, Coal-cutter.	Coal	While working in a depillaring area, a miner was seriously injured by a piece of stone 2' x 1'-3" x 3" which fell from the roof 30 feet above and struck him. He died shortly afterwards. Inspection and inquiry made.
33	3rd November, 9 A.M.	Loyabad mine, Bansjora P. O., Bihar and Orissa.	Burrakar Coal Co., Ltd	Joyram Bhuiya, (m.), 20, Labourer.	Coal	Deceased was killed instantly and two other persons were seriously injured by a mass of stone, 17' x 13' x 1'-3", which fell unexpectedly from the roof of a stone drift 8 feet high, which was being dressed. Inspection and inquiry made.

34	8th November, 5-45 A.M.	Mosaboni mine, Mosaboni P. O., Bihar and Orissa.	Indian Copper Cor- poration, Ltd.	Kul Bahadur, (m.), 83, <i>Shot-firer.</i>	Copper	Following blasting operations, deceased entered a stope and was killed instantly by a mass of stone measuring 16' x 18' and from 9' to 18' thick which fell from the hanging wall. Inspection and inquiry made.
35	15th November, at about 3 P.M.	Jatachhapamine, Parasia P. O., Central Provinces.	Amalgamated Coal- fields, Ltd.	Chhoteyal Kalar, (m.), 33, <i>Timberman.</i> Gayadin Kurmi, (m.), 33, <i>Labourer.</i>	Coal	While two miners were attempting to extract props in a goaf a large fall of roof occurred and both were killed.
36	25th November, 1-20 P.M.	Bengal Jharia mine, Jharia P. O., Bihar and Orissa.	Bengal Jharia Col- liery Co.	Rashi Majhian, (f.), 41, <i>Coal-carrier.</i>	Coal	Deceased passed beneath some roof stone which was being dressed on a main haulage road, when a mass of stone, 4' x 4' x 9" thick, fell from a slip and killed her on the spot. Inspection and inquiry made.
37	29th November, 1-30 A.M.	Jamadoba mine, Jeslgora P. O., Bihar and Orissa.	Tata Iron and Steel Co., Ltd.	Panchoo Meah, (m.), 35, <i>Sirdar.</i>	Coal	Following depillaring operations, deceased was directing the withdrawal of props from a working place, when a piece of roof coal, 4' x 3' x 8", fell from a height of 7' 6" and he sustained serious injuries. He died nineteen hours later. Inspection and inquiry made.
38	18th December, 8-30 A.M.	Mosaboni mine, Mosaboni P. O., Bihar and Orissa.	Indian Copper Corporation, Ltd.	Chinniah Kolandai, (m.), 22, <i>Timberman.</i>	Copper	While two timbermen were climbing down a stope a piece of stone measuring 6' x 4' x 1', fell from the hanging wall. One man was killed instantly and the other sustained a serious injury. Inspection and inquiry made.
39	27th December 2-30 A.M.	Lodna (Nos. 4 and 5 (Jharia pits) mine, P. O., Bihar and Orissa.	Lodna Colliery Co. (1920), Ltd.	Ram Prosad Kori, (m.), 25, <i>Coal-carrier.</i>	Coal	Deceased was in a working place when a piece of roof coal, 2' x 1'-6" x 1'-6", fell on him from a height of 25 feet and he was killed instantly. Inspection and inquiry made.
(b) Falls of side—(44 deaths).						
40	4th January, 1 P.M.	Jeetpur mine, Bhaga P. O., Bihar and Orissa	Bengal Iron Co., Ltd.	Milap Gowala, (m.), 45, <i>Coal-cutter</i>	Coal	While a miner was taking down loose coal at the face of a machine cut gallery 4'-6" high a block of coal, 3' x 2'-6" x 1', fell off the face on to him and he received fatal injuries. If he had exercised greater care the accident would not have occurred. Inspection and inquiry made.
41	4th January, 3-20 P.M.	South Golukdih mine, Jharia P. O., Bihar and Orissa.	South Golukdih Coal Co.	Somri Bhuiyan, (f.), 28, <i>Loader.</i>	Coal	While a woman was loading a basket with coal in front of a stook of coal which was under extraction, a mass of coal 2'-6" x 1'-6" x 1', fell from a corner of the stook. Part of the coal rolled down a heap of slack coal, striking and seriously injuring the woman. She died nineteen days afterwards. Inspection and inquiry made.

APPENDIX II—contd.

Fatal Accidents during the year 1933—contd.

Serial number	Date and hour of accident.	Name and situation of mine.	Name of owner.	Name, sex, age and occupation of person killed.	Name of mineral worked.	Cause of accident and remarks
FALLS OF ROOF AND SIDES—contd.						
<i>(b) Falls of side—contd.</i>						
42	13th January, 7-30 P.M.	West Gopalichuck mine, Kusunda P. O., Bihar and Orissa.	Gopalichuck Coal Co., Ld.	Charak Meah, (m.), 34, Coal-cutter.	Coal	A miner was cutting coal from the corner of a pillar, when a mass of coal, 5' x 3' x 2', fell from a "slip" at a height of 9 feet, and struck deceased who was standing nearby. He received injuries to which he succumbed two hours later. Inspection and inquiry made.
43	1st February, 11-20 A.M.	Standard (Jharia Khas Section) mine, Jharia P. O., Bihar and Orissa.	Standard Coal Co., Ld.	Phuti Mullickui, (f.), 38, Loader.	Coal	While a woman was engaged in loading coal in a gallery, she was struck and fatally injured by a mass of coal, 3' x 4' x 7', which fell from the corner of the pillar. Inspection and inquiry made.
44	15th February, 4 P.M.	Lodna mine, Jharia P. O., Bihar and Orissa.	Lodna Colliery Co. (1920), Ld.	Meghai Pasi, (m.), 37, Coal-cutter.	Coal	In a depillaring area, a mass of coal, 6' x 4' x 22' high, fell from the side of a pillar and dislodged a prop. The prop struck a miner as he was attempting to escape, and killed him instantly. Inspection and inquiry made.
45	3rd March, 12 A. M.	Sangla Hill mine, Sangla Hill P. O., Punjab.	North Western Railway.	Mahanda, (m.), Labourer..	Stone	Deceased was killed by a fall of side in a quarry.
46	10th March, 1-30 A.M.	Chinchuria mine, Assansol P. O., Bengal.	New Beerbhoom Coal Co., Ld.	Behari Pashi, (m.), 50, Coal-cutter.	Coal	While a miner was cutting coal from the side of a pillar a mass of coal, 5' x 1'-6" x 1'-6", fell from a height of 6 feet. He received injuries from which he died soon after. Inspection and inquiry made.
47	18th March, 5-10 A.M.	Kanbank mine, Kanbank P. O., Burma.	Kanbank Mines, Ld.	Bana, (m.), 25, Labourer.	Tin and wolfram	While working in a cutting 15 feet deep deceased was buried by a mass of earth which fell from the side. He was dead when extricated. Inspection and inquiry made.
48	23rd March, 4-20 A.M.	Lodna mine, Jharia P. O., Bihar and Orissa.	Lodna Colliery Co (1920), Ld.	Athi Gorai, (m.), 23, Loader.	Coal	While coal was being loaded in a gallery 28 feet high, a mass of coal weighing about 1 ton fell from a concealed "slip" in the side at a height of 16 feet. One coal-loader was fatally injured and another seriously injured. Inspection and inquiry made.

49	25th March, 10 A.M.	Lodna (Nos. 4 and 5 Pits) mine, Jharia P. O., Bihar and Orissa.	Lodna Colliery Co. (1920), Ld.	Sarhu Rubidas, (m.), 28, Coal-carrier.	Coal	Deceased was filling a basket of coal in a gallery when a small piece of coal fell from the "face" on to his foot, causing slight injury. Tetanus supervened and he died nine days later. Inspection and inquiry made.
50	7th April, 2 P.M.	Dishergarh mine, Dishergarh P. O., Bengal.	Equitable Coal Co., Ld.	Bhabani Gope, (m.), 22, Coal-cutter.	Coal	While collecting debris for packing a tramline a miner was killed instantly by a mass of overhanging coal, 5' x 1'-9" x 1'-6", which fell on him without warning. Inspection and inquiry made.
51	24th April, 7 A.M.	Murwara mine, Katui P. O., Central Provinces.	Cowasji Bajajji Bajan.	Lalli Darban, (m.), 40, Miner.	Limestone.	While a gang of five men were at work on the floor of a quarry, a fall of side measuring about 14' x 6' x 2', occurred from a height of 10 feet. One of the gang was buried under the fall and suffocated, three were seriously injured and the fifth man received minor injuries. Inspection and inquiry made.
52	6th May, 9 A.M.	Zadiwin mine, Palaw P. O., Burma.	Eu Gwan Kyin .	Balagyi Behara, (m.), 25, Tributator.	Tin	While a cooly was under-cutting the sides of an open cut 10 feet deep a fall of earth occurred and buried him. He was suffocated. Inspection and inquiry made.
53	9th May, 5-30 P.M.	Standard (Jharia Khas) mine, Jharia P. O., Bihar and Orissa.	Standard Coal Co., Ld.	Parameswar Dosadh, (m.), 36, Coal-cutter.	Coal	While two miners were breaking up coal which they had dressed down from the side of a pillar, a stay-prop supporting the side of an adjacent pillar became dislodged, allowing a mass of coal to fall. One miner was killed instantly. Inspection and inquiry made.
54	5th June, 11 P.M.	Dharmaband mine, Katrasgarh P. O., Bihar and Orissa.	New Tetturya Coal Co., Ld.	Bishu Mahata, (m.), 35, Coal-cutter.	Coal	Deceased was dressing coal from the side of a gallery when a piece of coal fell on his foot, inflicting serious injuries. He died about a fortnight later. Inspection and inquiry made.
55	15th June, 4-45 P.M.	Bara-Golai mine, Marghorita P. O., Assam.	Assam Railways and Trading Co., Ld.	Gora Gowala, (m.), 29, Labourer.	Coal	While a number of persons were at work in an "opening" or chamber, 46' x 20' x 10' high, a "bump" occurred in the roof and caused a piece of coal, 6' x 3' x 2', to fall from the side. A labourer endeavouring to reach a place of safety was crushed by the coal against the side of a pillar, and sustained injuries to which he succumbed three days later. Inspection and inquiry made.
56	16th June, 10 A.M.	Bhulanbararee mine, Pathardih P. O., Bihar and Orissa.	Bhulanbararee Coal Co., Ld.	Gosto Behari Chakravarty, (m.), 45, Tub-checker.	Coal	A tub-checker was struck and fatally injured by a mass of coal, 16' x 9' x 1'-6", which fell from the side of a pillar in a roadway 16 feet in height. Inspection and inquiry made.
57	14th July, 3 A.M.	Kankane mine, Bausjora P. O., Bihar and Orissa.	Eastern Coal Co., Ld.	Budhari Bilaspurin, (f.), 23, Loader.	Coal	While working in a gallery 10 feet high, a woman was struck and fatally injured by a wedge-shaped mass of coal, 12' x 6' x 2', which fell from the side of a pillar. Inspection and inquiry made.

APPENDIX II—contd.

Fatal Accidents during the year 1933—contd.

Serial number.	Date and hour of accident.	Name and situation of mine.	Name of owner.	Name, sex, age and occupation of person killed.	Name of mineral worked.	Cause of accident and remarks.
FALL OF ROOF AND SIDES—contd.						
<i>(b) Falls of sides—contd.</i>						
58	17th July, 1 P. M.	Bagdigi mine, Jharia P. O., Bihar and Orissa	Anderson Wright & Co.	Khadhou Bilaspuri (m.), 35, Coal-cutter.	Coal	A miner was assisting to move a ladder for the purpose of taking down some overhanging coal when a piece of coal was dislodged, a portion of which struck him, inflicting serious injuries, from which he afterwards died. Inspection and inquiry made.
59	26th July, 4-30 P. M.	Deoli mine, Dishergarh P. O., Bihar and Orissa.	Deoli Coal Co., Ltd	Bhatu Ohamar, (m.), 32, Timber Mistry	Coal	While props were being drawn in a goafing area a mass of coal fell from a 'stook' and dislodged a prop 16 feet long. In falling it struck and fatally injured the timberman. Inspection and inquiry made.
60	27th July, 11-30 A.M.	Harmyngyi mine, Harmyngyi P. O., Burma.	Consolidated Tin Mines of Burma, Ltd.	Ah Foon, (m.), 40, Miner.	Tin and wolfram.	While walking to his working place on the side of a steep hill which was being sluiced deceased was fatally injured by stone which rolled down the hill side and hit him on the head. Inspection and inquiry made.
61	8th August, 3 P.M.	Durgapur mine, Jharia P.O., Bihar and Orissa	D. Hamir & Sons	Lakhi Ram Manjhi, (m.), Coal-cutter.	Coal	Deceased left his appointed working place, passed through a fence and was robbing coal from the side of a pillar, when a mass of coal, 6' x 5' x 3' approximately, fell on him from a height of 7 feet. He was killed instantly. Inspection and inquiry made.
62	10th August, 1 A.M.	Kustore mine, Kusunda P. O., Bihar and Orissa.	Raneegunge Coal Association, Ltd.	Ajodhaya Bhaktu. (f), 20, Coal-carrier.	Coal	A miner was dressing down the side of a gallery after blasting, when a mass of coal, about 9' x 3' x 1'-6", fell and struck a female coal-carrier. She received injuries which proved fatal shortly after. Inspection and inquiry made.
63	13th August, 5 A.M.	South Goluckdih mine, Jharia P.O., Bihar and Orissa.	South Goluckdih Coal Co.	Budhan Bhuiya, (m), 25, Coal-carrier Karu Bhuiya, (m.), 30, Sambhu Chamar (m.), 30, Coal-cutter.	Coal	A gang of miners was engaged to cut floor coal in the vicinity of a pillar under extraction. One side of the pillar had been undercut to a depth of 4 feet 6 inches and along a length of about 25 feet. A mass of coal, about 14' x 13' x 4'-6" thick fell from a pronounced cleavage plane in the side of the pillar, killing two persons on the spot, and seriously injuring four others. One of the injured persons died three months later. Inspection and inquiry made.

	17th August, 7-30 A.M.	Kustore mine, Kusunda P. O., Bihar and Orissa.	Raneegunge Coal Association, Ltd.	Bhola Rajwar, (m.), 30, Loader.	Coal	While two loaders were leaving their working place at the end of the shift a mass of coal, 10' x 3' x 1'-6" approximately, fell from two converging slips at the side. One of them received serious injuries which proved fatal three days later. Inspection and inquiry made.
65	1st September, 7 A. M.	Wagon South (Bwabin) mine. Tavoy P. O., Burma	Consolidated Tin Mines of Burma Ltd.	Dhal Bahadur, (m.), 35, Monitor Man.	Tin and wolfram	While removing stones which had been washed down by a monitor, an attendant was injured by a stone which rolled down from a height of 15 feet. He contracted Pneumonia from which he died seventeen days later. Inspection and inquiry made.
66	1st September 2 P. M.	Balliary mine. Kusunda P. O., Bihar and Orissa.	Chuni Lall Ticam- chand Coal Co., Ltd.	Chhatar Chamar, (m.), 42, Coal-cutter.	Coal	While deceased was helping to fill a basket with coal near the side of a pillar under extraction, a mass of coal, 4' x 2' x 2', fell from the side at a height of 10 feet, causing fatal injuries. Inspection and inquiry made.
67	9th September, 4 P.M.	Sngi mine, Kodarma P. O., Bihar and Orissa.	F. F. Chrestien & Co., Ltd.	Fagu Turi, (m.), 38, Driller.	Mica	While a number of drillers were engaged in drilling shot-holes in a stope, a piece of schist, 5' x 4' x 1'-6", fell from the side and fatally injured one of the drillers. Inspection and inquiry made.
68	18th September, 11 A.M.	Kysukkutaung mine, Tavoy P. O., Burma.	Quah Hun Cheong.	Mg. Po Aye, (m.), 18, Labourer.	Tin and wolfram.	While deceased was carrying tools along a tail race he was buried by a mass of earth, 8' x 6' x 2' thick, which fell from the side. Life was extinct when his body was recovered. Inspection and inquiry made.
69	26th September 12-30 A.M.	Jamadoba mine, Jalgora P. O., Bihar and Orissa.	Tata Iron & Steel Co., Ltd.	Dhirsi Bilaspuri, (m.), 22, Loader.	Coal	While deceased was filling a basket with coal near the face of a pillar 7 feet high a mass of coal, 20' x 7' x 5' approximately, fell unexpectedly from the side. Deceased was instantly killed. Inspection and inquiry made.
70	4th October, 1-30 P.M.	Bhuggudih mine, Jharis P. O., Bihar and Orissa	Bengal Nagpur Coal Co., Ltd.	Ganapat Mahato, (m.), 31, Coal-cutter.	Coal	While a miner was making a hole through a rib of coal into a goaf a mass of coal weighing about 2 cwts fell from the side and he received severe injuries from which he afterwards died. Inspection and inquiry made.
71	7th October, 4 A.M.	Lodna mine, Jharis P. O., Bihar and Orissa	Lodna Colliery Co. (1920), Ltd.	Nanku Pasi, (m.), 33, Loader.	Coal	While a loader was at work in a depillaring area a mass of overhauling coal, 3' x 1'-6" x 1', fell from the side from a height of 24 feet, and killed him instantly. If the side of the pillar had been properly dressed after a shot had been fired the accident would not have occurred. Inspection and inquiry made.
72	9th October, 12-15 P.M.	Ghorawari mine, Junnordeo P. O., Central Provinces.	Hirdagarh Colli- eries, Ltd.	Karo Mahran, (f.), 25, Tub-loader.	Coal	Two tub-loaders—a man and a woman—were caught between a large piece of coal which fell from the side of a pillar and a tub which they were filling. Both were seriously injured and the woman died later as the result of the accident.

APPENDIX II—*contd.*

Fatal Accident during the year 1933—*contd.*

Serial number.	Date and hour of accident.	Name and situation of mine.	Name of owner.	Name, sex, age and occupation of person killed.	Name of mineral worked.	Cause of accident and remarks.
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FALL OF ROOF AND SIDES—*concl'd.*

(b) Falls of sides—*concl'd.*

73	28th October, 10 A.M.	Pagaye mine, Tavoy P. O., Burma.	Teh La Pe . . .	Mg. Aung Pe, (m.), 19; Mg. Tun Baw, (m.) 20; Mah Si Mah, (f.), 62, <i>Labourers.</i>	Tin and wolfram.	While four persons were working in a prohibited area a mass of earth, 12' x 8' x 2' thick, fell from the side of the cutting and buried three of the workers. When extricated they were dead. Inspection and inquiry made.
74	10th November, 1-30 P.M.	Chandametta mine, Parasia P. O., Central Provinces.	Panch Valley Coal Co., Ltd.	Mithan Gond, (m.), 50, <i>Coal-cutter.</i>	Coal .	While deceased was levering down coal partially loosened by a shot, a mass of coal 2' x 3' x 10' thick fell on him and killed him.
75	30th November, 6 A.M.	Dhemo Main mine, Sitarampur P. O., Bengal.	Dhemo Main Col- lieries, Ltd.	Julu Meah, (m.), 36, <i>Coal-cutter.</i>	Coal .	While a miner was cutting the side of a pillar during depillaring operations in a seam 11'-6" thick, he released a mass of coal weighing about $\frac{1}{2}$ ton from a cleat in the side. He was struck by the falling coal and fatally injured. Inspection and inquiry made.
76	13th December, 10-45 P.M.	Bawdwin mine, Namtu P. O., Burma.	Burma Corpora- tion, Ltd.	Swin Htin Shwin, (m.), 25, <i>Miner.</i>	Lead- silver zinc.	While leaving a 'rise' at the end of a shift a miner was killed by a piece of ore which fell from the side of the 'rise'. Inspection and inquiry made.
77	13th December, 2-15 A.M.	Sitalpur mine, Dish- garh P. O., Bengal.	Bengal Coal Co., Ltd.	Bhagia Turin, (f.), 45, <i>Coal-carrier,</i>	Coal .	In a depillaring area, a sudden fall of coal from the side of a pillar dislodged a prop 12 $\frac{1}{2}$ feet long. A loader was struck on the head by the prop and killed instantly. Inspection and inquiry made.
78	28th December, 10-30 A.M.	Standard (Benahir sec- tion) mine, Jharia P. O., Bihar and Orissa.	Standard Coal Co., Ltd.	Gostabehari Chatterjee, (m.), 36, <i>Shot-firer.</i>	Coal .	While deceased was sitting in a gallery, 28 feet high, a mass of coal, weighing about 1 ton, fell from the side of a pillar under extraction. The coal struck and dislodged a prop set as a support for the roof, and the prop fell on deceased, killing him on the spot. Inspection and inquiry made.

79	30th December, 5 P. M.	Mayangon mine, May- angon P. O., Burma,	Khan Bahadur Ibrahim,	Megni Gaw, (m), 18, Miner.	Stone	While carrying rock from the face of a quarry one coolie was fatally and seven others slightly injured by a large mass of overburden which fell from a height of 30 feet. Inspection and inquiry made.
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IN SHAFTS (FALLING DOWN SHAFT)—(3 deaths).

80	1st February, 9-45 P. M.	Jeetpur mine, Bhaga P. O., Bihar and Orissa.	Bengal Iron Co., Ld.	Ram Bharas Rohi- das, (m), 22, Coal-cutter.	Coal	While a miner was in the act of stepping into a cage from an intermediate landing in a shaft, the cage began to ascend. The miner was precipitated 180 feet to the bottom of the shaft, and was killed instantly. Inspection and inquiry made.
81	20th March, 9-30 P. M.	Majhli mine, Kodarma P. O., Bihar and Orissa.	Chota Nagpur Mica Syndicate (1932), Ld.	Roton Gope, (m.), 29, Miner.	Mica	A miner who was working in a drive 11 feet from the bottom of a shaft 93 feet deep left his working place with the intention of proceeding to the surface. He fell to the bottom of the shaft and was fatally injured. Inspection and inquiry made.
82	24th September, 10-15 A. M.	Bawdwin mine, Namtu P. O., Burma.	Burma Corporation, Ld.	Maung Ba Shin, (m.), 49, Fitter.	Silver- lead- zinc.	While engaged in changing a sinking pump a fitter fell from a scaffold to the bottom of the shaft 25 feet below. He was fatally injured. Inspection and enquiry made.

BY EXPLOSIVES—(10 deaths).

83	19th January, 7 A. M.	East Ghogri mine, Junnordeo P. O., Central Provinces.	Seth Misrilal Meghraj & Brothers.	Bana Dain, (m), 35, Coal-cutter.	Coal	After a misfired shot had exploded deceased was found lying fatally injured within a few feet of the place where the shots had been fired. The entrance to the gallery was forced. Inspection and inquiry made.
84	14th February, 8 P. M.	Ballarpur mine, Ballarpur P. O., Central Provinces.	Sir Biseswardass Daga & Sir M. B. Dadabhoy.	Ayya Ankula, (m), 25, Sinker.	Coal	It is suspected that deceased was attempting to remove a misfired charge of explosive when the charge exploded and he was instantly killed. The cause was however obscure. Inspection and inquiry made.
85	15th February, 10-30 A. M.	Kymore mine, Kymore P. O., Central Provinces.	C. P. Cement Co., Ld.	Nohri Kolin, (f.), 18, Loader.	Lime- stone.	A loader was struck on the head and fatally injured by a piece of stone which was projected a distance of 670 feet by blasting operations in open workings. Inspection and inquiry made.
86	16th April, 7-30 P. M.	Kargali mine, Bokaro P. O., Bihar and Orissa.	Secretary of State for India.	Budhua, (m), 30, Explosives carrier.	Coal	The contents of a liquid Oxygen Explosives soaking can became ignited, causing an explosion as a result of which one explosives carrier was killed and another seriously injured. Inspection and inquiry made.

APPENDIX II—*contd.*

Fatal Accidents during the year 1933—*contd.*

Serial number	Date and hour of accident.	Name and situation of mine.	Name of owner.	Name, sex, age and occupation of person killed.	Name of mineral worked.	Cause of accident and remarks.
BY EXPLOSIVES—<i>contd.</i>						
37	2nd May, 2 A. M.	Newton Chickli mine, Parasia P. O., Central Provinces.	Newton Chickli Collieries, Ltd.	Doma Sonar, (m.), 22, Coal-cutter.	Coal	In spite of being warned by the shot-firer, deceased went near a working gallery where 3 gunpowder shots had been lighted. He was killed instantly by a piece of coal about one foot cube in dimensions which was projected a distance of 63 feet by the blasting. Inspection and inquiry made.
88	28th July, 10-45 A. M.	Sitalpur mine, Ukhra P. O., Bengal.	Sitalpur Coal Co.	Harnam Sing, (m.), 36, Shot-firer.	Coal	Soon after two shots of dynamite had failed to explode the shot-firer returned to the gallery and was fatally injured when one of the shots exploded. If the regulations regarding mis-fired shots had been complied with this accident would not have occurred. Inspection and inquiry made.
89	23rd July	Sutlej mine, Mumbarani P. O., Bombay.	Government of Punjab, (Public Works Department, Irrigation Branch).	Tharo, (m.), Shot- firer.	Lime- stone.	A shot-firer was attempting to remove a charge of gunpowder from a shothole when the gunpowder exploded and he was fatally injured.
90	22nd August, 1-50 P.M.	Sunkerpore mine, Ukhra P. O., Bengal.	Burn & Co., Ltd.	Budhni Mahalin, (f), 22. Not employed.	Coal	While a quantity of country gunpowder was being dried on the top of a Lancashire boiler, the powder was ignited and a woman who was in charge was fatally burnt. It is presumed that some of the powder which was in close proximity to one of the dampers was carried into the flue by the down draught and ignited. Inspection and inquiry made.
91	3rd September, 6 P.M.	Sutlej mine, Mumbarani P. O., Bombay	Government of Punjab, (Public Works Department, Irrigation Branch).	Ram Piyari, (f), Labourer	Lime- stone.	A female worker was struck and fatally injured by a stone which was thrown a distance of 860 feet during blasting operations.
92	26th October, 5-30 A.M.	Newton Chickli mine, Junnordeo P. O., Central Provinces.	Newton Chickli Collieries, Ltd.	Muzaffar (m.), 27, Coal-cutter.	Coal	Deceased crossed a fence against the shot-firer's order and returned to a place where a shot had hung fire. On reaching the place the shot exploded inflicting serious injuries from which he subsequently died.

HAULAGE—(25 deaths).

93	24th January, 5 P.M.	Jatachhapa mine, Parasia P. O., Central Provinces.	Amalgamated Coal- fields, Ld.	Assaram Brahmin, (m.), 20, Coal-cutter.	Coal	While a train of seven loaded tubs was being drawn out of a loading level, the coupling between the first and the second tubs broke, allowing the six tubs to run back a few feet before the drag came into operation. A miner, who was walking on the road was crushed between the end tub of the train and a pillar and killed. Inspection and inquiry made.
94	27th January, 8-30 P.M.	Lodna mine, Jharia P. O., Bihar and Orissa	Lodna Colliery Co. (1920), Ld.	Dahu Tanti, (m.), 38, Hookman.	Coal	Deceased stood on the curve of an underground haulage road to guide a set of empty tubs, which was being lowered round the curve, when the third tub became derailed and ran over his foot. He sustained serious injuries and died the following day. Inspection and inquiry made.
95	22nd February, 6-30 A.M.	Patmohna mine, Sitarampur P.O., Bengal.	North Damuda Coal Co., Ld.	Mangloo Koiri, (m.), 38, Loader	Coal	While a tub was being lowered by hand on a buffer on an incline dipping 1 in 7, it got out of control. Deceased hung on to it until it struck the buffer and was killed. Inspection and inquiry made.
96	11th February, 10 A.M.	Bhalgora mine, Jharia P. O., Bihar and Orissa.	Bhalgora Coal Co., Ld.	Bideshi Dosadh, (m.), 45, Trammer.	Coal	While pushing a tub on a tramming road, a trammer was struck by another tub which approached from behind. He sustained fatal injuries. Inspection and inquiry made.
97	16th February, 10-30 A.M.	Victoria mine, Kulti P. O., Bengal.	New Beerbhoom Coal Co., Ld.	Budhan Banri, (m.), 33, Shot-firer.	Coal	While walking down a haulage incline a shot-firer was fatally injured by a set of empty tubs, which ran wild owing to the breaking of a coupling chain. Inspection and inquiry made.
98	24th February, 5-30 A.M.	Namdang mine, Margherita P. O., Assam.	Assam Railways and Trading Co., Ld.	Khayestagan Pathan, (m.), 28, Trammer	Coal	While a set of 15 loaded tubs was being coupled up on a haulage road dipping at 1 in 29, the tubs, which were not spragged, commenced to run back. A trammer, who tried to stop the set, was crushed between a tub and the side of the road, and fatally injured. Inspection and inquiry made.
99	4th March, 1 P.M.	New Kesalpur mine, Katrasgarh P. O., Bihar and Orissa.	New Kesalpur Col- liery Co.	Budhai Kurmi, (m.), 28, Hookman.	Coal	While a train of seven empty tubs was being lowered down a haulage plane dipping at 1 in 6, the leading tub became uncoupled and ran uncontrolled. It was derailed at a crossing, and deceased who was standing nearby was struck and fatally injured. Inspection and inquiry made.
100	7th March, 8 A.M.	Sripur mine, Kalipahari P. O., Bengal.	Lodna Colliery Co. (1920), Ld.	Sarada Bauri, (m.), 45, Trammer.	Coal	While a train of loaded tubs was being hauled up, a part of it ran back owing to the failure of a drawbar link. A trammer, who was following the train, was knocked down by a derailed tub and sustained serious injuries from which he subsequently died. Inspection and inquiry made.

APPENDIX II—*contd.*

Fatal Accidents during the year 1933—*contd.*

Serial number.	Date and hour of accident.	Name and situation of mine.	Name of owner.	Name, sex, age and occupation of person killed.	Name of mineral worked.	Cause of accident and remarks.
HAULAGE—<i>contd.</i>						
101	24th March, 8 P.M.	Standard (Jharia Khas Section) mine, Jharia P. O., Bihar and Orissa.	Standard Coal Co., Ld.	Munshi Dosadh, (m.), 34, <i>Trolleyman.</i>	Coal	A trolleyman was riding down an incline on a rake of loaded tubs when a jerk on the haulage rope threw him to the ground. He sustained a serious injury and died fifteen days later. Inspection and inquiry made.
102	24th March, 5 P.M.	Sirka mine, Argada P. O., Bihar and Orissa.	South Karanpura Coal Co., Ld.	Chedi Hazam, (m.), 32, <i>Trolleyman.</i>	Coal	Four trolleyman were engaged in guiding a loaded tub round a curve on a haulage road. The tub overturned and fell on one of them. He sustained fatal injuries. Inspection and inquiry made.
103	10th April, 12-30 P.M.	Jectpur mine, Bhaga P. O., Bihar and Orissa.	Bengal Iron Co., Ld.	Hari Pada Roy, (m.), 36, <i>Labourer.</i>	Coal	While a set of 14 full tubs was being drawn up a haulage road rising at 1 in 8 the drawbar-hook of the first tub opened out and the haulage rope became detached. After running backwards about 20 feet the set was derailed by the drag and the tubs overturned. A labourer who was working at the entrance to a level off the haulage road was struck by coal thrown from one of the overturning tubs and fatally injured. Inspection and inquiry made.
104	4th May, 11-15 A.M.	Katras mine, Katrasgarh P. O., Bihar and Orissa.	Burrakar Coal Co., Ld.	Ruplal Turi, (m.), 32, <i>Door-attendant.</i>	Coal	While operating a ventilation door on a haulage road, a door-attendant was crushed between a set of loaded tubs and the door. He sustained fatal injuries. Inspection and inquiry made.
105	20th May, 8 A.M.	Barkui mine, Parasia P. O., Central Provinces.	Pench Valley Coal Co. Ld.	Janki Gondni, (f.), 30, <i>Tub-filler.</i>	Coal	While walking in front of a moving train of tubs, deceased was knocked down by the leading tub, sustaining injuries from which she died within twenty-four hours. Inspection and inquiry made.
106	25th May, 5 P.M.	Loyabad mine, Bansjora P. O., Bihar and Orissa.	Burrakar Coal Co., Ld.	Sri Ram Ojha, (m.), 32, <i>Haulage atten- dant.</i>	Coal	Owing to the breakage of a haulage rope, four loaded tubs ran amain down a haulage plane. A haulage attendant was struck and killed instantly. Inspection and inquiry made.

107	7th July, 4 A.M.	Malkera mine, Katrasgarh P. O., Bihar and Orissa.	Tata Iron & Steel Co., Ltd.	Ranjan Meah, (m.), 34, Trolleyman.	Coal	An empty and two full tubs were being lowered on a rope $\frac{3}{4}$ " diameter down a haulage road, 1,300 feet long with a gradient of 1 in 4 to 1 in 5. The rope which had net coiled evenly on the drum slipped and became slack. The set accelerated until the slack was taken up, when the rope suddenly jerked and broke, allowing the set to run wild for a distance of about 600 feet. Deceased, who was standing at the bottom of the haulage road, was struck by the runaway tubs and killed instantly. Inspection and inquiry made.
108	16th August, 10-30 P.M.	Newton Chickli mine, Parasia P. O., Central Provinces.	Newton Chickli Collieries, Ltd.	Ganesh. (m.), 18, Underground trammer.	Coal	Deceased was endeavouring to release a sprag in the wheel of a tub on a level road when the tub was struck from behind by other tubs, causing him to fall between the tub and a stop block. His left foot was badly smashed and he died about twenty-four hours later. Inspection and inquiry made.
109	23rd August, 8-45 A.M.	Jamadoba mine, Jealgora P. O., Bihar and Orissa.	Tata Iron & Steel, Co., Ltd.	Binoly Mahato, (m.), 36, Onsetter.	Coal	While a train of nine empty mine cars was being lowered into a siding at the bottom of an underground haulage road, an onsetter was crushed between it and a train of loaded cars which were stationary in an adjacent siding. He sustained serious injuries from which he afterwards died. Inspection and inquiry made.
110	24th August, 9-30 A.M.	Bhamori mines, Parasia P. O., Central Provinces.	Amalgamated Coal- fields, Ltd.	Sukwaria Kolan, (f.), 40, Mason's assistant.	Coal	A combined set of seven empty and seven loaded tubs was being hauled up an incline having a gradient of about 1 in 7 when a coupling broke and thirteen of the tubs ran wild. A woman who was standing in a level off the incline took fright and ran in front of the tubs. She was struck and killed. It was against the manager's orders to attach more than seven tubs to the rope at one time and there was no drag attached to the last tub of the combined set. Inspection and inquiry made.
111	6th September, 5-30 P.M.	Kurhurbaree mine, Giridih P. O., Bihar and Orissa.	East Indian Rail- way.	Akloo Gope, (m.), 34, Coal-cutter.	Coal	While two miners were pushing two empty tubs along a gallery on a line reserved for loaded tubs and dipping at 1 in 30, their tubs collided with a set of five loaded tubs which was gravitating in the opposite direction. One of the miners was thrown against the side of the gallery and killed instantly. Inspection and inquiry made.
112	7th September, 2 P.M.	Kongou & Borjan mine, Kongnyu P. O., Assam.	Nazira Coal Co., Ltd.	Hyderatadi, (m.), 38, Surface coal loader.	Coal	When a set of four full tubs was passing over the brow of a self-acting incline dipping at 1 in $3\frac{1}{2}$ the rope broke and the set ran amain. A surface labourer who was walking up the incline was struck by the runaway tubs and fatally injured. He had been warned not to travel on the incline until the set had been lowered. Inspection and inquiry made.

APPENDIX II—contd.

Fatal Accidents during the year 1933—contd.

Serial number.	Date and hour of accident.	Name and situation of mine.	Name of owner.	Name, sex, age and occupation of person killed.	Name of mineral worked.	Cause of accident and remarks.
HAULAGE—(25 deaths)—contd.						
113	8th September, 7-30 A.M.	Tisra mine, Jharia P. O., Bihar and Orissa.	Amarsinh Gowamal and Manji Gowamal.	Keshabar Singh, (m), 32, <i>Underground tranner.</i>	Coal	Deceased was attempting to re-rail a loaded tub in a set of seven while the set was in motion. Three of the front tubs turned over, and he was crushed between one of the overturned tubs and the side of a pillar while running for safety and sustained fatal injuries. Inspection and inquiry made.
114	23rd September, 4 A.M.	Poniati mine, Charauppur P. O., Bengal.	H. K. Nag	Akali Bauri, (m), 25, <i>Trolleyman.</i>	Coal	While a set of eight empty tubs was being lowered down a haulage plane dipping at 1 in 10, the second tub of the set became derailed and caused the first tub to become uncoupled and run 'wild'. A trolleyman who was coming out of a level 330 feet below was struck by the tub and fatally injured. Inspection and inquiry made.
115	14th October, 8 P.M.	Bararee mine, Jealgora P. O., Bihar and Orissa.	East Indian Coal Co., Ltd.	Mongal Manjhi, (m), 32, <i>Coal-cutter.</i>	Coal	Two miners were walking with insufficient light when a rake of five loaded tubs collided with them. They both received injuries, as the result of which one man died twelve days later. Inspection and inquiry made.
116	1st November, 4 P.M.	Tisra mine, Jharia P. O., Bihar and Orissa.	Diamond Coal Co.	Rumi Deswali, (f), 25, <i>Coal-carrier.</i>	Coal	An empty and four loaded tubs were resting against a ledge of coal one foot high, which acted as a "buffer", in a gallery with a gradient of 1 in 10. Deceased was standing between the tubs, loading the last one against the "buffer", when the loaded tubs above moved and she was crushed between them. She was killed instantly. Inspection and inquiry made.
117	16th November, 12 Noon.	Bhagaband mine, Jharia P. O., Bihar and Orissa.	Borrea Coal Co., Ltd.	Furki Baurin, (f), 25, <i>Coal-carrier.</i>	Coal	A set of eight empty tubs had been drawn out of a level and was about to be lowered down a haulage road dipping at 1 in 11, when the first tub became uncoupled, ran uncontrolled for a distance of about 900 feet, and was derailed at a crossing. Deceased who was nearby was struck and killed instantly. Inspection and inquiry made.

SUNDRIES UNDERGROUND—(10 deaths).

118	11th January, 4-10 P.M.	Ekra Khas mine, Bansjora P. O., Bihar and Orissa	Maharaja Srish Chandra Nandi.	Janki Nunic, (m.), 35, <i>Stone-cutter.</i>	Coal	While bringing down a piece of stone in a quarry, a man fell a height of 12 feet, and received serious injuries, from which he afterwards died. Inspection and inquiry made.
119	17th March, about 9 A. M.	Kbarkhari-Moheshpur mine, Katrasgarh P. O., Bihar and Orissa.	Kharkhari Coal Co.	Debu Gope, (m.), 18, <i>Coal-cutter.</i>	Coal	While on the way to his working place underground, deceased it is presumed, entered a fenced off area for a natural purpose and fell from the top section to the bottom section workings, 13 feet below. He was killed instantly. Inspection and inquiry made
120	27th March, 2-50 P.M.	Sibpur mine, Charanpur P. O., Bengal.	Katras-Jherria Coal Co., Ld.	Madan Ghosh, (m.), 35, <i>Labourer.</i>	Coal	Deceased ran down a haulage dip in front of a runaway train of tubs and crashed violently into a stopping. He sustained internal injuries which proved fatal. Inspection and inquiry made.
121	5th April, 11-30 A. M.	Loyabud mine, Bansjora P. O., Bihar and Orissa.	Barrakur Coal Co., Ld.	Ali Mohammed, (m.), 30, <i>Labourer.</i>	Coal	While lashing a rope to a pipe below water in a dip gallery a labourer was drowned. Inspection and inquiry made.
122	5th May, 1-30 A. M.	Sendra mine, Bansjora P. O., Bihar and Orissa.	Sendra Coal Co., Ld.	Rasdhari Turi, (m.), 26, <i>Coal-carrier.</i>	Coal	While a miner was filling his basket with coal in a depillar ing section, a prop fell out and displaced another prop which struck him causing serious injuries, from which he afterwards died. Inspection and inquiry made
123	18th May, 10-15 A. M.	Lodna mine, Jharia P. O., Bihar and Orissa.	Lodna Colliery Co., (1920), Ld.	Rambharas Kunbi, (m.), 42, <i>Coal-cutter.</i>	Coal	While deceased was drilling a shot hole in a pillar under extraction, a prop, about 25 feet long, fell out and struck him on the head. He sustained injuries to which he succumbed the following day. Inspection and inquiry made.
124	16th August, 8 P. M	Namdang mine, Margherita P. O., Assam.	Assam Railways and Trading Co., Ld.	Khoja Mohammad Pathau, (m.), 48, <i>Coal-cutter.</i>	Coal	A gallery 10 feet wide, 6 feet high and rising at 1 in 1½ had become jammed with coal which had fallen from the roof of an 'opening'. Deceased was attempting to relieve the "jam" when the coal suddenly rushed down the gallery. He was buried and suffocated before he could be released. Inspection and inquiry made.
125	4th September, 4-30 P.M.	Bararee mine, Jalgora P. O., Bihar and Orissa.	East Indian Coal Co., Ld.	Megha Mahato, (m.), 32, <i>Coal-cutter</i>	Coal	While working underground deceased struck his knee with his pick. After receiving medical attention at the colliery hospital he went to his quarters and for five days, treated the wound himself. Septicæmia then set in and he returned to hospital where he died three months later. Inspection and inquiry made.

APPENDIX II—contd.

Fatal Accidents during the year 1933—contd.

Serial number.	Date and hour of accident.	Name and situation of mine.	Name of owner.	Name, sex, age and occupation of person killed.	Name of mineral worked.	Cause of accident and remarks.
SUNDRIES UNDERGROUND—(10 deaths)—contd.						
126	6th October, 5 A.M.	Ena mine, Jharia P. O., Bihar and Orissa.	North West Coal Co., Ltd.	Lutabali Meah, (m.), 30, Coal-cutter.	Coal	Deceased was lifting a basket of coal on to a companion's head in a depillaring area. when a piece of coal, 1' x 1' x 6", rolled from the goaf on to his left leg, resulting in serious injuries. He died four days later. Inspection and inquiry made.
127	31st December, 8-45 A.M.	Bawdwin mine, Namtu P. O., Burma.	Burma Corporation, Ltd.	Maguni Chand, (m.), 35, Miner.	Silver- lead-zinc	While a grizzly in a chute was being cleared the staging or slide over the manway suddenly gave way and pinned a miner below it. He was severely injured and afterwards died. Inspection and inquiry made.
BY SURFACE MACHINERY—(2 deaths).						
128	23rd June, 6 A.M.	Hurriladih mine, Jharia P. O., Bihar and Orissa.	Equitable Coal Co., Ltd.	Jharu Meah, (m.), 40, Labourer.	Coal	It is presumed that whilst attempting to cross over the driving shaft on a chain grate stoker in action deceased was caught by a sprocket wheel on the shaft and fell upon it. He received serious injuries which proved fatal forty hours later. Inspection and inquiry made.
129	23rd June, 11 A.M.	South Kujama mine, Jharia P. O., Bihar and Orissa.	South Kujama Colliery Co.	Yusuf Meah, (m.), 20, Labourer.	Coal	A small stationary vertical engine, which was used for driving a dynamo, was being tested after undergoing repairs. The rim of the driving pulley was loose, and when the engine was accelerated, the rim flew off and struck deceased. He sustained serious injuries to which he succumbed four days later. Inspection and inquiry made.
ON SURFACE RAILWAYS AND TRAMWAYS BELONG- ING TO THE MINE—(5 deaths).						
130	13th April, 9 A.M.	Ghogry mine, Junnordeo P. O., Central Provinces.	Seth Misrilal Megh- raj & Brothers.	Shanker Kunbi, (m.), 40, Trammer.	Coal	While two trammers were riding on a loaded tub which was gravitating on a slightly graded line the next tub overtook them. One managed to jump clear but the other was crushed between the two tubs and died soon after. Inspection and inquiry made.

131	11th July, 12-30 P.M.	Makerwal mine, Trag P. O., Punjab.	L. Iswar Das Kapur and Mr. C. B. Petman.	Mahammad Din, (m.), 40, Fitter.	Coal	Deceased was crushed under a portable water-tank while it moved uncontrolled down a gradient of 1 in 28 approximately and turned over. He was killed instantly. Inspection and inquiry made.
132	9th September, 2-30 A.M.	Kargali mine, Bokaro P. O., Bihar and Orissa.	Secretary of State for India.	Chetan Bhuiya (m.), 25, Trolleyman.	Coal	Deceased was engaged in placing a tub in a tippler when another tub running wild, struck him. He was seriously injured and died three hours later. Inspection and inquiry made.
133	22nd Novem- ber, about 10 A.M.	Lakurka mine, Katrasgarh P. O., Bihar and Orissa.	Lakurka Coal Co., Ld.	Bahadur Kahar, (m.), 24, Labourer.	Coal	While helping to push an empty wagon along a railway siding, deceased slipped and fell between the wharf wall and the moving wagon. He received serious injuries and died seven hours later. Inspection and inquiry made.
134	4th December, 11 A.M.	Ghogri (East) mine, Junnordeo P. O., Central Provinces.	Seth Misrilal Megraj & Brothers.	Dularia Kollu, (f.), 26.	Coal	Deceased attempted to ride on a moving tub on a surface tramline and slipped and fell under the tub. She received severe injuries to the right leg and died in hospital eleven days later.
MISCELLANEOUS ON SURFACE—(8 deaths.)						
135	8th March, 10-45 A.M.	Searssole mine, Raniganj P. O., Bengal.	Searssole Coal Co., Ld.	Mati Baurin, (f.), 45, Coal-carrier.	Coal	A coal-carrier engaged in carrying coal from a loading depot to a bungalow, was crossing a railway line when she was knocked down by a train and killed instantly. Inspection and inquiry made.
136	18th March, 5-30 P.M.	Taungzun mine, Taungzun P. O., Burma.	Osman Mastikhan & Co.	Ko Po Aye, (m.), 40, Driller.	Stone	While leaving a quarry a driller slipped down a bank 6 feet high. The drill which he was carrying pierced his chest, killing him. Inspection and inquiry made.
137	2nd April, 12-30 P.M.	Gopalpur mine, Pakur P. O., Bengal.	S. G. Bose (Lessee), Rajgaon Stone Co., Ld.	Mutha Manjhi, (m.), 15, Loco Cleaner.	Stone	After lighting a cigarette, a cleaner working in a locomotive shed threw down a lighted match which ignited some jute waste which was saturated with oil. This in turn set fire to his clothing and he sustained burns to which he succumbed three days later. Inspection and inquiry made.
138	13th July	Searssole mine, Raniganj P. O., Bengal.	Searssole Coal Co., Ld.	Sabi Baurin, (f.), 35, Loader.	Coal	The body of a female loader was found floating in a boiler feed tank. It was presumed that she had gone there to drink water and had fallen in. Inspection and inquiry made.
139	27th August, 9-30 A.M.	Bhangia Gurosote mine, Japla P. O., Bihar and Orissa.	Sone Valley Port- land Cement Co., Ld.	Etwaria Chamain, (f.), 16, Loader.	Li m e - stone.	While running for safety a female loader slipped and was struck by a mass of stone, about 2' x 1'-9" x 9", which was thrown down from the face of a quarry from a height of 75 feet. She received injuries to which she succumbed nine days later. Inspection and inquiry made.

APPENDIX II—contd.

Fatal Accidents during the year 1933—contd.

Serial number.	Date and hour of accident.	Name and situation of mine.	Name of owner.	Name, sex, age and occupation of person killed.	Name of mineral worked.	Cause of accident and remarks.
140	12th November, 4-45 A. M.	Newton Chickli mine, Parasia P. O., Central Provinces.	Newton Chickli Collieries, Ltd.	Bhikka, (m), 18, Bankaman.	Coal	Deceased fell asleep near a coal fire. His clothing caught fire and he was severely burnt and died soon afterwards.
141	Probably 7th or 8th December.	Ena mine, Jharua P. O., Bihar and Orissa.	North West Coal Co., Ltd.	Unknown man, (m), about 55.	Coal	The body of an unknown man was found lying at the bottom of a surface subsidence 25 feet deep. Inspection and inquiry made.
142	31st December, 6-15 A. M.	Bhangla Guroso te mine, Japla P. O., Bihar and Orissa.	Sone Valley Portland Cement Co., Ltd.	Bigu Kandoo, (m.), Loader.	Limestone	While running for safety, deceased fell down and was struck by a large piece of stone, measuring about 3' x 3' x 2', which was thrown down from the face of a quarry from a height of 60 feet. He received injuries which proved fatal two and half hours later. Inspection and inquiry made.

APPENDIX II—contd.

Fatal Accidents during the year 1933—contd.

Serial number	Date and hour of accident.	Name and situation of mine.	Name of owner.	Name, sex age and occupation of person killed.	Name of mineral worked.	Reason for exclusion	Cause of accident and remarks.
FATAL ACCIDENTS NOT INCLUDED IN THE STATISTICS—(25 deaths).							
1	13th January 3-30 P.M.	Kustore mine, Kusunda P. O., Bihar and Orissa,	Raneegunge Coal Association, Ld	Ramji Teli, (m), 26, Coal-cutter.	Coal	An accident under the Railways Act.	A miner was walking beside the main line track. The engine of a train, travelling in the same direction, struck a crowbar which he was carrying. He received injuries which caused instantaneous death. Inspection and inquiry made.
2	9th February, 10-30 P.M.	Golukdih mine, Jharia P. O., Bihar and Orissa	Bangur Daga & Co	Fanwa Chamarin (f.), 30, Labourer Doman Chamar (m.), 10, Nanhua Chamar, (m.), 3.	Coal	Not a mining accident.	While a number of persons were sleeping in a temporary hut with a straw roof, the roof caught fire from a fire inside the hut. Two children were burnt to death on the spot and a woman received severe burns which proved fatal twelve hours later. Inspection and inquiry made.
3	10th February, 10 A.M.	Moncharbahal mine, Asansol P. O., Bengal.	Chandanmull Intrakuinar.	Titua Dosadh, (m), 22, Cowherd.	Coal	Not employed.	Deceased, who was a cowherd, was drowned while bathing in a boiler feed tank. Inspection and inquiry made.
4	22nd February, 4-15 P.M.	Shivrajpur mine, Shivrajpur P. O., Bombay.	Shivrajpur Syndicate, Ld.	Kaloo, (m), 42, Labourer.	Manganese ore	Not a mining accident	Deceased fell into a pool of water and was drowned.
5	21st February, 11-30 P.M.	Madhuband mine, Nudkharkeo P. O., Bihar and Orissa.	Karam Chand Thapar & Brothers, Ld.	Bula Bhuiya, (m.), 19.	Coal	Not employed	Deceased was drowned while bathing in an old quarry containing about 6 feet of water. Inspection and inquiry made
6	22nd February, 11 A.M.	Ganhocdih mine, Jharia P. O., Bihar and Orissa.	S. B. Banerjee	Banshi Mochi, (m), 17.	Coal	Not employed.	Deceased was drowned while bathing in an abandoned quarry. Inspection and inquiry made.

APPENDIX II—contd.

Fatal Accidents during the year 1933—contd.

Serial number.	Date and hour of accident.	Name and situation of mine.	Name of owner.	Name, sex, age and occupation of person killed.	Name of mineral worked.	Reason for exclusion.	Cause of accident and remarks.
FATAL ACCIDENTS NOT INCLUDED IN THE STATISTICS—(25 deaths)—contd.							
7	12th March, 7-5 P.M.	Bokaro mine, Bokaro P. O., Bihar and Orissa.	East Indian and Bengal Nagpur Railways.	Mussammat Niku, (f.), about 50.	..	An accident under the Electricity Act.	Deceased climbed a post carrying a high tension electric power line and apparently came in contact with a live conductor. She received a shock at about 6,830 volts and fell down. In falling her head was jammed between two members forming part of the post. She was understood to be of unsound mind. The system was 11,000 volts A. C. 3 phase with earthed neutral. Inspection and inquiry made.
8	13th March, 3 P.M.	Era mine, Jharia P. O., Bihar and Orissa.	North West Coal Co., Ltd.	Grajan Bhumij (m.), 45, Coal-cutter.	Coal	Not a mining accident.	A miner was taken ill while at work underground, and died shortly after being brought to the surface. Inspection and inquiry made.
9	16th March, 5-30 P.M.	Charanpur mine, Charanpur P. O., Bengal.	Apcar Collieries, Ltd.	Bhabi Baurin, (f.), 20.	Coal	Not employed.	Two goats went into an old subsidence over a fire area and were "gassed". The owner went down to retrieve them and collapsed. When his wife went to his assistance she also collapsed and was asphyxiated. The owner recovered after artificial respiration. In attempting to rescue them other three persons were affected but managed to get out. Inspection and inquiry made.
10	24th March, about 8-45 A.M.	Malkera-Choitodih mine, Katrasgarh P. O., Bihar and Orissa.	Tata Iron and Steel Co., Ltd.	Abhu, (f.), 3.	Coal	Not employed.	While playing, deceased fell into a tank, containing water, 4 feet deep, and was drowned. Inspection and inquiry made.
11	31st May, 6 P.M.	Gopalichuck West mine, Kusunda P. O., Bihar and Orissa.	Gopalichuck Co., Ltd.	Chohan Mahato, (m.), 25, Coal-carrier.	Coal	An accident under the Railways Act.	While crossing a railway main line in front of a running train deceased was run over and killed instantly. Inspection and inquiry made.

12	5th June	Kargali mine, Bokaro P. O., Bihar and Orissa	Secretary of State for India.	Dasmal Chamarin, (f.), 80.	Coal	Not employed.	A blind woman wandered on to a spoil heap which was on fire. Her body was found in the early hours of the morning, lying on the ground, the arms back and head being severely burned. Inspection and inquiry made.
13	18th June, 2-30 P.M.	Sonardih mine, Katragarh P. O., Bihar and Orissa	Chandanmull Indrakumar.	Mukti Telin, (f.), 16.	Coal	Not employed.	A girl was drowned in an old abandoned quarry. The quarry was adequately fenced. Inspection and inquiry made.
14	1st July, 12 noon.	Chhatrisganda mine, Pandaveswar P.O., Bengal.	Samla Collieries, Ld.	Khudu Bastami, (f.), 70.	Coal	Not employed.	While deceased was standing aside to let a locomotive pass she slipped and fell against the engine receiving severe injuries from which she afterwards died. Inspection and inquiry made.
15	4th August, 8 A.M.	Poidih mine, Sundarchak P. O., Bengal.	Bengal Coal Co., Ld.	Sairavi Baurin, (f.), 41, Coal-carrier.	Coal	An accident under the Railway Act.	Deceased was sheltering from the rain under a wagon when it was bumped by an engine. While attempting to come out, she fell on the line and was run over by the wheels of the wagon. Inspection and inquiry made.
16	17th August, 4 A.M.	Banksimula mine, Charanpur P. O., Bengal.	Do.	Abani Nath Pal, (m.), 23, Electrician.	Coal	Not a mining accident.	Deceased, who was on duty, was found lying on the floor of a switch room in an unconscious state. A medical examination revealed the fact that he had taken a fatal dose of opium to commit suicide. He expired within a few hours of his taking the opium. Inspection and inquiry made.
17	19th August.	East Barkuhi mine, Parasia P. O., Central Provinces.	Hazi Syed Zahiruddin.	Son of Budoo Kole, (m.), 3.	Coal	Not employed.	A child, three years old fell into a disused incline containing water and was drowned. The incline was fenced. The manager was asked to fill it in. Inspection and inquiry made.
18	28th September.	Singaran mine, Toposi P. O., Bengal.	Singaran Coal Syndicate, Ld.	Souri Mejhian, (f.), 27, Beggars.	Coal	Not employed.	Deceased was found drowned in an old shaft 50 feet deep. Inspection and inquiry made.
19	3rd October, 7-30 A.M.	Kustore mine, Kusunda P. O., Bihar and Orissa.	Raneegunge Coal Association, Ld.	Deobati, (f.), 20, Loader.	Coal	Not a mining accident.	Deceased jumped down a shaft, 296 feet deep, and was killed instantly. Inspection and inquiry made.
20	22nd October, 9-30 A.M.	Damra Mine, Kalpahari P. O., Bengal.	Kalpahari Co., Ld.	Khundi Mahalin, (f.), 9.	Coal	Not employed.	A child slipped and fell into an unfenced old incline containing water about 8 feet deep and was drowned. Inspection and inquiry made.

APPENDIX II—*contd.*

Fatal Accidents during the year 1933—*concl'd.*

Serial number.	Date and hour of accident.	Name and situation of mine.	Name of owner.	Name, sex, age and occupation of person killed.	Name of mineral worked.	Reason for exclusion.	Cause of accident and remarks.
FATAL ACCIDENTS NOT INCLUDED IN THE STATISTICS—(25 deaths)—<i>concl'd.</i>							
21	30th October, 10 A. M.	Hermyingyi mine, Hermyingyi P. O., Burma	Consolidated Tin Mines of Burma, Ld.	Maung Sain Mai (m.), 35, <i>Sawyer.</i>	Tin and wolfram	Not a mining accident	Two wood-cutters felled a tree which in falling came to rest against another tree. While felling the second one the first tree fell and fatally injured one of the wood-cutters. Inspection and inquiry made.
22	11th Novem- ber, 8-30 P.M.	Upper Ghorawary, Mine, Junnordeo P. O., Central Provinces.	Lala Sudhoo Lal.	Menoti Mahra, (f), 30, <i>Loader.</i>	Coal	Not a mining acci- dent.	Deceased fell into a well and was drowned.
23	14th Novem- ber, 5 P.M.	Bhulanbararee mine, Pathardih P. O., Bihar and Orissa.	Bhulanbararee Coal Co., Ld.	Ramabatar Kanoo, (m), 15.	Coal	Not em- ployed.	Deceased was trying to jump on a set of five loaded tubs which was being hauled up a surface haulage with a gradient of 1 in 5, when he fell between the tubs and was run over. He sustained serious injuries to which he succumbed an hour later. Inspection and inquiry made.

APPENDIX II.

Table No. 2.

Table

Statement of fatal and serious accidents in and about Mines

Province.	District and Mineral field.	FATAL							
		Number of separate fatal accidents.	Number of deaths.						
			Under-ground.		Open workings.		Surface.		Total.
			Males.	Females.	Males.	Females.	Males.	Females.	
Assam	Lakhimpur—M a k u m coalfield.	5	5	
	Naga Hills—Nazira coalfield.	1	1	...	...	...	...	...	1
Baluchistan	Sibi—Khost coalfield	..	..	..	..	..	..	..	..
Bengal (and part of Bihar and Orissa).	Raniganj coalfield	25	21	4	...	...	...	2	27
Bihar and Orissa	Jharia coalfield	61	51	9	1	...	4	...	65
	Bokaro „	2	..	..	1	...	1	...	2
	Karainpura „	1	1	..	..	..	..	..	1
	Giridih „	3	4	..	..	..	..	..	4
Central Provinces	Chanda	1	1	..	..	..	..	..	1
	Chhindwara—P e n o n Valley coalfield.	15	10	3	..	..	2	1	16
Punjab	Salt Range coalfield	2	1	.	..	..	1	..	2
Total (Coal)		116	95	16	2	..	8	3	124

DIX II—contd.

No. 2.

regulated by the Indian Mines Act, during the year 1935.

ACCIDENTS.				SERIOUS ACCIDENTS.											
Death rate per 1,000 persons employed.				Number of separate serious accidents.	Number of persons seriously injured.							Serious injury rate per 1,000 persons employed.			
Underground.	Open workings.	Surface.	Underground, Open workings and Surface.		Under-ground.		Open workings.		Surface.		Total.	Underground.	Open workings.	Surface.	Underground, Open workings and Surface.
					Males.	Females.	Males.	Females.	Males.	Females.					
AL															
4.50	...	...	3.17	43	39	..	...	...	3	1	43	35.07	...	8.62	97.28
4.55	.	...	2.84	..	..	..	...	...	..	..	..	..	..	..	..
...	...	...	...	1	1	..	...	...	..	..	1	9.71	...	...	9.52
0.71	...	0.16	0.55	80	57	10	...	...	15	...	82	1.90	...	1.17	1.68
1.49	1.02	0.21	1.08	171	131	20	...	...	19	5	175	3.74	...	1.28	2.91
...	0.23	0.37	0.21	38	30	..	...	5	5	..	40	12.71	1.13	1.87	4.22
1.12	...	...	0.43	6	3	..	...	1	2	..	6	3.37	1.16	3.34	2.55
0.61	...	...	0.49	25	19	2	...	...	3	1	25	3.19	...	3.54	3.09
0.43	...	...	0.32	6	4	..	...	...	1	1	6	1.72	...	2.83	1.95
2.28	...	1.27	1.98	91	58	10	...	..	25	..	93	11.91	...	10.58	11.51
1.08	...	1.75	1.32	21	14	..	...	..	7	..	21	15.10	...	12.24	13.85
1.15	0.27	0.27	0.86	432	356	42	...	6	80	8	492	4.12	0.80	2.17	3.40

Table

Statement of fatal and serious accidents in and about Mines

Province.	District and Mineral field.	FATAL								
		Number of separate fatal accidents.	Number of deaths.							
			Under-ground.		Open workings.		Surface.		Total.	
			Males.	Females.	Males.	Females.	Males.	Females.		
										IRON
Bihar and Orissa . . .	Singbhum . . .	...	...	...	...	...	...	...	...	...
Burma	Northern Shan States .	...	...	...	...	...	...	...	...	...
	Total (Iron Ore) . .	...	...	...	...	...	...	...	...	...
										LEAD
Burma	Northern Shan States .	4	4	...	...	...	..	...	4	4
										GO
Bihar and Orissa . . .	Manbhum . . . . .	...	...	...	...	...	...	...	...	...
Burma	Southern Shan States .	...	...	...	...	..	...	...	...	...
	Total (Gold) . . . . .	...	...	...	..	...	...	...	...	...
										TIN AND
Burma . . . . .	.....	7	2	...	7	1	...	...	10	10

DIX II—contd.

No. 2—contd.

regulated by the Indian Mines Act, during the year 1933—contd.

ACCIDENTS.				SERIOUS ACCIDENTS.											
Death rate per 1,000 persons employed.				Number of separate serious accidents.	Number of persons seriously injured.							Serious injury rate per 1,000 persons employed.			
Underground.	Open workings.	Surface.	Underground, Open workings and Surface.		Underground.		Open workings.		Surface.		Total.	Underground.	Open workings.	Surface.	Underground, Open workings and Surface.
					Males.	Females.	Males.	Females.	Males.	Females.					
ORE															
..	3	..	..	2	..	1	..	3	..	0·91	1·02	0·94
..	1	..	..	..	..	1	..	1	..	..	6·85	3·97
..	4	..	..	2	..	2	..	4	..	0·86	1·69	1·14
ORE															
1·89	1·17	94	91	..	..	..	4	..	95	31·64	..	8·18	27·87
LD															
..	1	1	..	..	..	..	..	1	66·67	..	..	17·24
..	1	..	..	..	..	1	..	1	..	..	10·42	8·20
..	2	1	..	..	..	1	..	2	20·23	..	7·41	10·53
WOLFRAM ORE															
1·27	1·27	..	1·16	23	10	..	3	..	10	..	23	6·33	0·48	13·70	2·67

Table

Statement of fatal and serious accidents in and about Mines

Province.	District and Mineral field.	FATAL								
		Number of separate fatal accidents.	Number of deaths.						Total.	
			Under-ground.		Open workings.		Surface.			
			Males.	Females.	Males.	Females.	Males.	Females.		
Bihar and Orissa . . .	Singhbhum	2	2	.	...	...	...	...	2	COPPER
Bihar and Orissa . . .	.....	3	3	...	...	...	...	...	3	MI
Madras . . . . .	.....	...	...	...	...	...	...	...	...
	Total (Mica)	3	3	...	...	...	...	...	3	
Punjab . . . . .	.....	...	...	...	...	...	...	...	...	SA
Bihar and Orissa . . .	.....	2	...	...	...	...	1	1	2	LIME

DIX II—contd.

No. 2—contd.

regulated by the Indian Mines Act, during the year 1933—contd.

ACCIDENTS.				SERIOUS ACCIDENTS.												
Death rate per 1,000 persons employed.				Number of separate serious accidents.	Number of persons seriously injured.								Serious injury rate per 1,000 persons employed.			
Underground.	Open workings.	Surface.	Underground, Open workings and Surface.		Underground.		Open workings.		Surface.		Total.	Underground.	Open workings.	Surface.	Underground, Open workings and Surface.	
					Males.	Females.	Males.	Females.	Males.	Females.						
ORE																
1.53	0.98	17	9	...	...	..	7	1	17	6.88	...	10.78	8.29	
CA																
0.37	0.28	7	10	...	...	...	...	...	10	1.23	..	...	0.94	
...	1	2	...	...	...	...	...	2	2.76	...	...	1.11	
0.34	0.24	8	12	...	...	...	...	...	12	1.35	...	...	0.96	
LT																
...	7	4	1	...	...	2	...	7	5.57	...	4.91	5.30	
STONE																
..	...	6.08	1.23	...	..	...	...	..	...	...	...	...	..	...	...

DIX II—contd.

No. 2—contd.

regulated by the Indian Mines Act, during the year 1933—contd.

ACCIDENTS.				SERIOUS ACCIDENTS.												
Death rate per 1,000 persons employed.				Number of separate serious accidents.	Number of persons seriously injured.								Serious injury rate per 1,000 persons employed.			
Underground.	Open workings.	Surface.	Underground, Open workings and Surface.		Underground.		Open workings.		Surface.		Total.	Underground.	Open workings.	Surface.	Underground, Open workings and Surface.	
					Males.	Females.	Males.	Females.	Males.	Females.						
STONE—contd.																
...	6.94	..	6.33	..	..	..	..	..	..	..	..	..	..	..	..
...	0.44	..	0.39	10	..	..	2	4	2	2	10	..	1.31	6.92	1.95
...	.	..	..	2	..	..	1	..	1	..	2	..	2.91	2.75	2.83
...	0.59	1.53	0.74	12	..	..	3	4	3	2	12	..	1.04	3.83	1.49
NE																
...	..	1.93	1.11	..	..	..	..	..	..	..	..	..	..	..	..
...	..	..	..	2	..	..	1	..	1	..	2	..	32.26	23.46	27.03
..	0.81	33.93	1.59	2	..	..	2	..	..	..	2	..	1.02	..	1.59
..	..	..	..	1	..	..	1	..	..	..	1	..	1.13	..	0.95

Table

Statement of fatal and serious accidents in and about Mines

Province.	District and Mineral field.	Number of separate fatal accidents.	FATAL						
			Number of deaths.						Total.
			Under-ground.		Open workings.		Surface.		
Males.	Females.	Males.	Females.	Males.	Females.				
Punjab . . .	Sheikhupura . . .	1	...	...	1	.	..	..	STO 1
	Total (Stone) . . .	4	...	...	2	...	2	...	4
Central Provinces .	Jubbulpore . . .	...	...	...	...	...	...	...	FIRE ...
	Grand Total (All minerals).	142	106	16	13	3	11	4	153

DIX II—*contd.*No. 2—*concl.*regulated by the Indian Mines Act, during the year 1933—*concl.*

ACCIDENTS.				SERIOUS ACCIDENTS.											
Death rate per 1,000 persons employed.				Number of separate serious accidents.	Number of persons seriously injured.							Serious injury rate per 1,000 persons employed.			
Underground.	Open workings.	Surface.	Underground, Open workings and Surface.		Underground.		Open workings.		Surface.		Total.	Underground.	Open workings.	Surface.	Underground, Open workings and Surface.
					Males.	Females.	Males.	Females.	Males.	Females.					
NE—<i>contd.</i>															
...	5.32	...	4.93	...	...	...	..	...	...	...	...	...	...	...	...
...	0.21	0.59	0.31	5	...	...	4	...	1	...	5	...	0.42	0.30	0.38
CLAY															
...	...	...	...	1	...	...	...	1	...	...	1	...	2.67	..	2.52
1.09	0.38	0.29	0.74	655	483	43	12	11	110	11	670	4.68	0.55	2.30	3.24

APPENDIX II—*concid.*

Table No. 3.

Statement of fatal accidents in Mines regulated by the Indian Mines Act, during the year 1933, classified according to cause of accident.

Mineral worked.	Number of separate fatal accidents.	Number of persons killed.												Death rate per 1,000 persons employed.				
		Explosions and ignitions of fire-damp.	Falls of roof.	Falls of side.	In shafts.	Suffocation by gases.	By explosives.	Irruptions of water.	Haulage.	Underground machinery.	Miscellaneous underground.	Surface.	Electricity.	Total deaths.	Underground.	Open workings.	Surface.	Underground, Open workings and Surface.
Coal . . .	116	6	34	31	1	..	7	.	25	..	9	11	..	124	1.15	0.27	0.27	0.86
Lead Silver . .	4	..	1	1	1	..	..	.	..	..	1	..	..	4	1.39	..	..	1.17
Tin and Wolfram Ore.	7	..	2	8	..	..	..	..	..	..	..	..	..	10	1.27	1.27	..	1.16
Copper Ore . .	2	..	2	..	..	..	..	..	..	..	..	..	..	2	1.53	..	..	0.98
Mica . . .	3	..	1	1	1	..	..	..	..	..	..	..	..	3	0.34	..	..	0.24
Limestone . .	6	..	..	1	..	..	3	..	..	..	..	2	..	6	..	0.59	1.53	0.74
Stone . . .	4	..	..	2	..	..	..	..	..	..	..	2	..	4	..	0.21	0.59	0.31
Total 1933 . .	142	6	40	44	3	..	10	..	25	..	10	15	..	153	1.09	0.38	0.29	0.74
Total of preceding year.	163	7	52	53	6	19	13	..	29	..	7	13	1	200	1.54	0.34	0.28	0.93
Difference . . .	-21	-1	-12	-9	-3	-19	-3	..	-4	..	+3	+2	-1	-47	-0.45	+0.04	+0.01	-0.24

APPENDIX III.

Statement of prosecutions under the Indian Mines Act, and Indian Penal Code, during the year 1933.

Province.	District.	Number of prosecutions.	Number of persons prosecuted.	Number of persons convicted.	Number of Regulations, and Rules and Sections of the Act contravened.	REMARKS.
Bengal	Burdwan . . .	1	1	1	Regulations 55 (1), 67 and 137 of the Indian Coal Mines Regulations, 1926.	
	Do. . . .	1	1	1	Regulations 82 and 148 of the Indian Coal Mines Regulations, 1926.	
	Do. . . .	1	4	4	Regulations 121, 132 and 146 of the Indian Coal Mines Regulations, 1926, and By-law 38 made under section 32 of the Indian Mines Act, 1923, read with Regulation 132 of the Indian Coal Mines Regulations, 1926	
	Do. . . .	1	1	1	Rule 18 of the Bengal Government Rules made under section 30 of the Indian Mines Act, 1923, read with Regulation 137 (2) of the Indian Coal Mines Regulations, 1926.	
	Do. . . .	1	2	2	Sections 286 and 304 of the Indian Penal Code.	
	Do. . . .	1	1	1	Regulation 95 of the Indian Coal Mines Regulations, 1926.	
	Marbhum . . .	4	5	2	Regulation 17 of the Indian Coal Mines Regulations, 1926.	The cases against 3 of the accused were dropped.
Do. . . .	1	2	2	Regulation 137 (2) of the Indian Coal Mines Regulations, 1926, and Rule 16 of the Rules made by the Bihar and Orissa Government under section 30 of the Indian Mines Act, 1923.		
Bihar and Orissa.						

APPENDIX III—*contd.*

Statement of prosecutions under the Indian Mines Act, and Indian Penal Code, during the year 1933—*contd.*

Province.	District.	Number of prosecutions.	Number of persons prosecuted.	Number of persons convicted.	Number of Regulations, and Rules and Sections of the Act contravened.	REMARKS.
Bihar and Orissa— <i>contd.</i>	Munbhun . . .	1	2	2	Regulations 81 (c), 137 and 139 of the Indian Coal Mines Regulations, 1926.	
	Do. . . .	1	3	3	Regulations 17 and 137 (2) of the Indian Coal Mines Regulations, 1926, and Rule 18 of the rules made by the Bihar and Orissa Government under section 30 of the Indian Mines Act, 1927.	
	Do. . . .	1	1	...	Regulation 17 of the Indian Coal Mines Regulations, 1926 and Rule 18 of the Rules made by the Bihar and Orissa Government under section 30 of the Indian Mines Act	Case dropped as accused was in an Indian State.
	Do. . . .	1	2	2	Rule 18 of the Rules made by the Bihar and Orissa Government under section 30 of the Indian Mines Act.	
	Do. . . .	1	3	...	Regulation 761 of the Indian Coal Mines Regulations, 1926	Two of the accused were acquitted and the case against the third was withdrawn.
	Do. . . .	1	4	3	Regulations 139 and 149 of the Indian Coal Mines Regulations, 1926 and Regulation 4 of the Government of India Notification No M-1055, dated 7th March 1929.	One of the accused died.
	Do. . . .	1	2	1	Regulations 137 and 53 (2) of the Indian Coal Mines Regulations, 1926, and Rule 8 of the rules made by the Bihar and Orissa Government under section 30 of the Indian Mines Act, 1927.	Case against one of the accused was dropped.

APPENDIX III—*contd.*

Statement of prosecutions under the Indian Mines Act, and Indian Penal Code, during the year 1933—*contd.*

Province.	District.	Number of prosecutions.	Number of persons prosecuted.	Number of persons convicted.	Number of Regulations, and Rules and Sections of the Act contravened.	REMARKS.
Bihar and Orissa— <i>concd.</i>	Manbhum . . .	1	1	...	Regulation 3 (3) of the Indian Coal Mines Regulations, 1926.	Case against the accused was withdrawn.
	Do. . .	1	2	2	Regulations 67 and 137 of the Indian Coal Mines Regulations, 1926 and Bye-law 30 made under section 32 of the Indian Mines Act, 1923.	
	Giridih . . .	1	3	...	Regulation 67 of the Indian Coal Mines Regulations 1926, and Bye-laws 39, 41, 42 and 44 made under section 32 of the Indian Mines Act, 1923.	The case against the accused was withdrawn.
Bombay . . .	Sukkur . . .	1	1	1	Regulation 3 (1) of the Indian Metalliferous Mines Regulations, 1926	
Burma . . .	Tavoy . . .	1	1	1	Regulation 3 (1) of the Indian Metalliferous Mines Regulations, 1926.	
Delhi . . .	Delhi . . .	1	2	...	Regulation 3 (2) of the Indian Metalliferous Mines Regulations, 1926.	Withdrawn.
Punjab . . .	Gurgaon . . .	1	1	1	Regulations 20, 38 and 40 of the Indian Metalliferous Mines Regulations, 1926, and Rule 9 of the Rules made by the Punjab Government.	
	Do.	1	1	1	Regulations 20 and 40 of the Indian Metalliferous Mines Regulations, 1926, and Rule 9 of the Rules made by the Punjab Government.	

APPENDIX III—concl'd.

Statement of prosecutions under the Indian Mines Act, and Indian Penal Code, during the year 1933—concl'd.

Province.	District.	Number of prosecutions,	Number of persons prosecuted.	Number of persons convicted.	Number of Regulations, and Rules and Sections of the Act contravened.	REMARKS.
Punjab . . .	Sheikhpura . . .	1	2	...	Regulation 3 (1) of the Indian Metalliferous Mines Regulations, 1926.	The case was withdrawn.
United Provinces.	Hamirpur . . .	2	4	4	Regulations 20 and 46 of the Indian Metalliferous Mines Regulations, 1926.	
	Do.	3	6	6	Regulations 20 and 40 of the Indian Metalliferous Mines Regulations, 1926.	
	Do.	1	2	2	Regulations 20, 42 and 46 of the Indian Metalliferous Mines Regulations, 1926.	
	Do.	1	2	2	Regulations 20 and 42 of the Indian Metalliferous Mines Regulations, 1926.	
	Do.	2	4	4	Regulations 20, 40 and 46 of the Indian Metalliferous Mines Regulations, 1926.	
	Do.	4	5	5	Regulation 3 (1) of the Indian Metalliferous Mines Regulations, 1926.	
	Do.	1	1	1	Regulation 3 (2) of the Indian Metalliferous Mines Regulations, 1926.	
	TOTAL	41	72	55		

APPENDIX IV,

Miscellaneous.

Statement No. 1.

LIST OF INSPECTION CIRCLE.

No. 1 Circle.	No. 2 Circle.
1. All mines in Baluchistan.	1. All mines in Assam.
2. All mines in Bihar and Orissa except mines in the District of the Santhal Parganas and such mines in the District of Manbhum as lie east of a line drawn from mile 175 on the Bengal Nagpur Railway to mile 169 on the Grand Trunk Road and continued in a straight line across the District.	2. All mines in Bengal.
3. All mines in the North-West Frontier Province.	3. Such mines in Bihar and Orissa as lie in the District of the Santhal Parganas and in the District of Manbhum east of a line drawn from mile 175 on the Bengal Nagpur Railway to mile 169 on the Grand Trunk Road and continued in a straight line across the District.
4. All mines in the Punjab.	4. All mines in Bombay.
5. All mines in Rajputana.	5. All mines in Burma.
6. All mines in the United Provinces.	6. All mines in the Central Provinces.
	7. All mines in Madras.

Statement No. 2.

Names of persons to whom first and second class coal mine managers' certificates of competency and surveyors' certificates of competency were granted during the year 1933.

Certificates granted to holders of English certificates of competency.

(a) FIRST CLASS.

Name.	Number of Indian certificate.	Date of Indian certificate.	Number of English certificate.	Date of English certificate.
Burch, William Mitchell . . .	367	10th January 1933 .	2508	31st July 1930.
Fitz, Arthur Willis . . .	368	Ditto .	2329	25th January 1929.

APPENDIX IV—*contd.*Miscellaneous—*contd.*Statement No. 2—*contd.*

Names of persons to whom first and second class coal mine managers' certificates of competency and surveyors' certificates of competency were granted during the year 1933—*contd.*

Certificates granted to holders of English certificates of competency—*contd.*

(b) SECOND CLASS.

Nil.

(c) SURVEYORS' CERTIFICATES.

Name.	Number of Indian certificate.	Date of Indian certificate.	Number of English certificate.	Date of English certificate.
Fitz, Arthur Willis	2	10th January 1933 .	1009	24th July 1931.

INDIAN CERTIFICATES.

(a) FIRST CLASS.

Name.	No. of certificate.	Date of certificate.	REMARKS.
Kapoor, Bal Krishna	213	28th April 1933.	
Bagroy, Dasondhi Ram	214	Ditto.	
Sahgal, Siri Nath	215	Ditto.	
Katambe, Yeshwant Mahadeo	216	Ditto.	

APPENDIX IV—*contd.*Miscellaneous—*contd.*Statement No. 2—*contd.*

Names of persons to whom first and second class coal mine managers' certificates of competency and surveyors' certificates of competency were granted during the year 1933—*contd.*

INDIAN CERTIFICATES—*contd.*

(b) SECOND CLASS.

Name.	No. of certificate.	Date of certificate.	REMARKS.
Cooper, Sydney Jukes	476	3rd May 1933.	
Dey, Suresh Chandra	477	Ditto.	
Jabbi, Gurbachan Singh	478	24th August 1933.	
Patel, Raojibhai Chhotabhai	479	3rd May 1933.	
Grewal, Sarwan Singh	480	Ditto.	
Shah, Bhogilal Chhotalal	481	Ditto.	
Diddee, Dev Datta	482	Ditto.	
Marwah, Bichittar Singh	483	Ditto.	
Beck, Eric Frank	484	Ditto.	
Datey Laxmi Krishna	485	Ditto.	
Chatterjee, Debi Pada	486	Ditto.	
Bagchi, Nandalal	487	Ditto.	
Dey, Kishori Ballav	488	Ditto.	
Dutt, Nibaron Chandra	489	Ditto.	
Datta, H. C. S.	490	Ditto.	
Bose, Mihir Kumar	491	Ditto.	
Pendse, Narayan Vinayak	492	31st May 1933.	
Singh, Harnam	493	3rd May 1933.	

APPENDIX IV—*contd.*Miscellaneous—*contd.*Statement No. 2—*concl'd.*

Names of persons to whom first and second class coal mine managers' certificates of competency and surveyors' certificates of competency were granted during the year 1933—*concl'd.*

INDIAN CERTIFICATES—*concl'd.*

(c) SURVEYORS' CERTIFICATES.

Name.	No. of certificate.	Date of certificate.	REMARKS.
Chopra, Vidya Sagar	64	2nd February 1934.	
Yasin, Mohammed	65	Ditto.	
Dey, Suresh Chandra	66	Ditto.	
Chatterjee, Dharendra Nath	67	Ditto.	
Singh, Ram Naresh	68	Ditto.	
Ghatak, Ganga Dhar	69	Ditto.	
Khanna, S. M.	70	Ditto.	
Shah, Bhogilal Chhotalal	71	Ditto.	
Chatterjee, Gati Gobinda	72	Ditto.	
Patel, Raojibhai Chhotabhai	73	Ditto.	

APPENDIX IV—*contd.**Miscellaneous—contd.*

Statement No. 3.

NOTIFICATION.

Simla, the 20th April 1933.

No. M.-1265.—In exercise of the powers conferred by sub-section (1) of section 4 of the Indian Mines Act, 1923 (IV of 1923), the Governor General in Council is pleased to appoint the undermentioned officers to be *ex-officio* Inspectors of Mines :—

Madras Presidency.

The District Health Officer, Chingleput.
 The District Health Officer, Salem.
 The District Health Officer, Nellore.
 The District Health Officer, Kistna.
 The District Health Officer, Coimbatore.

Bengal Presidency.

The Assistant Director of Public Health, Burdwan Circle.

Bombay Presidency.

The Assistant Director of Public Health, Northern Registration District, Ahmedabad.
 The Assistant Director of Public Health, Central Registration District, Poona.
 The Assistant Director of Public Health, Southern Registration District, Belgaum.
 The Assistant Director of Public Health, Sind Registration District, Karachi.

Bihar and Orissa.

The Director of Public Health, Bihar and Orissa.
 The Assistant Director of Public Health, Chota Nagpur Circle.
 The Assistant Director of Public Health, South Bihar Circle.
 The Chief Medical Officer, Jharia Mines Board of Health.

Punjab.

The Director of Public Health, Punjab.
 The Assistant Director of Public Health, Rawalpindi Circle.
 The Assistant Director of Public Health, Lahore Circle.
 The Assistant Director of Public Health, Ambala Circle.
 The District Medical Officer of Health, Jhelum.
 The District Medical Officer of Health, Shahpur.
 The District Medical Officer of Health, Mianwali.

The District Medical Officer of Health, Attock.
 The District Medical Officer of Health, Rawalpindi.
 The District Medical Officer of Health, Kangra.
 The District Medical Officer of Health, Gurgaon.

Burma.

The Director of Public Health, Burma.
 The Assistant Director of Public Health, Burma.
 The Civil Surgeon, Northern Shan States.
 The Civil Surgeon, Mergui District.
 The Civil Surgeon, Tavoy District.
 The Civil Surgeon, Bassein District.

Central Provinces.

The Civil Surgeon, Nagpur District.
 The Civil Surgeon, Chhindwara District.
 The Civil Surgeon, Chanda District.
 The Civil Surgeon, Betul District.
 The Civil Surgeon, Jubbulpore District.
 The Civil Surgeon, Raipur District.
 The Civil Surgeon, Drug District.
 The Civil Surgeon, Bhandara District.
 The Civil Surgeon, Balaghat District.

Assam.

The Assistant Director of Public Health, Assam Valley Division.
 The Assistant Director of Public Health, Surma Valley Division.
 The Civil Surgeon, Lakhimpur.
 The Civil Surgeon, Naga Hills.

A. G. CLOW,

Joint Secretary to the Government of India.

APPENDIX IV—*contd.*Miscellaneous—*contd.*

Statement No. 4.

NOTIFICATION.

Simla, the 25th April 1933.

No. M.-1265.—In exercise of the powers conferred by section 29 of the Indian Mines Act, 1923 (IV of 1923), the Governor General in Council is pleased to direct that the following amendments, having been previously published as required by sub-section (1) of section 31 of the said Act, shall be made in the Indian Coal Mines Regulations, 1926, namely:—

In the said Regulations—

1. After sub-regulation (3) of regulation 3, the following sub-regulation shall be inserted, namely:—

“(4) On or before the first day of March in each year the owner, agent or manager of every mine shall forward to the Chief Inspector in duplicate a return in Form II-A, duly filled in. The figures given in the return shall relate to that day on which the number of persons attending work was highest during such week in February of that year as is selected in advance by the Chief Inspector.”

2. In the Schedule, after Form II, the following Form shall be inserted, namely:—

FORM II-A.

[SEE REGULATION 3 (4).]

Week selected by the Chief Inspector, February	to	19
Day to which this return relates February	19	

PART I.

Total number of persons attending work on the day shown above.

Classification.	No. of persons.
A.—Underground (<i>i.e.</i> , in places lying beneath the superjacent ground).	
I. Males.	
II. Females.	
B.—Open workings [<i>i.e.</i> , in workings of the mine (including quarries) which are not situated beneath the superjacent ground].	
I. Males.	
II. Females.	
C.—Surface (<i>i.e.</i> , not in the workings of the mine, including all subordinate officials and persons employed on sidings, loading wharves, private railways and surface tramways and also in carting).	
I. Males.	
II. Females.	

PART II.

Total number of persons who ordinarily work in the mine but were prevented by sickness of other cause from attending work on the day shown above.

Classification.	No. of persons.
A.—Underground (<i>i.e.</i> , in places lying beneath the superjacent ground). I. Males. II. Females.	
B.—Open workings [<i>i.e.</i> , in workings of the mine (including quarries) which are not situated beneath the superjacent ground]. I. Males. II. Females.	
C.—Surface (<i>i.e.</i> , not in the workings of the mine, including all subordinate officials and persons employed on sidings, loading wharves, private railways and surface tramways and also in carting). I. Males. II. Females.	

I certify that the total number of persons attending work was not higher on any other day of the week selected by the Chief Inspector.

Dated the 19 .

Owner, Agent or Manager.

NOTE.—Where persons are employed in both underground and open workings, the figures relating to them should be included under Section A.

Name of Mine

Name of Owner

Postal address of Owner

Signature of Owner, Agent or Manager

Dated 193 .

A. G. CLÓW,

Joint Secretary to the Government of India.

APPENDIX IV—*contd.*Miscellaneous—*contd.*

Statement No. 5.

NOTIFICATION.

Simla, the 22nd June 1933.

No. M.-1055.—In exercise of the powers conferred by section 29 of the Indian Mines Act, 1923 (IV of 1923), the Governor General in Council is pleased to direct that the following further amendments, having been previously published as required by sub-section (1) of Section 31 of the said Act, shall be made in the Indian Coal Mines Regulations, 1926, namely :—

I. In regulation 15 -

(i) For the proviso to sub-regulation (1) the following proviso shall be substituted, namely :—

“ Provided that where plans have been prepared on any other scale before the passing of these regulations, the Chief Inspector may on application by the owner, agent or manager permit such plans to be maintained on that scale.”

(ii) For sub-regulation (4) the following sub-regulation shall be substituted, namely :—

“(4) The plans required by this regulation shall be kept in the office at the mine. They shall be accurate and shall be maintained up to a date within six months; provided that where any mine or seam is abandoned or the working thereof has been discontinued the plan shall, before such abandonment or immediately after such discontinuance, be brought up to date to the time of abandonment or discontinuance, as the case may be, unless such abandonment or discontinuance has been caused by circumstances beyond the control of the owner, agent or manager, in which case the fact that the plan is not up to date shall be recorded on it.”

II. For regulation 75 the following regulation shall be substituted, namely :—

“ Where work is being done in any seam or part of a seam below another seam or part of a seam which contains or may contain an accumulation of water, or where work is being done in an upper seam or part of an upper seam which is at a lower level than any part of a lower seam which contains or may contain an accumulation of water, adequate precautions shall be taken against such an irruption of water into the seam where work is being done as would be likely to endanger the lives of the workmen in the mine.”

III. After regulation 75, the following regulations shall be inserted, namely :—

“75A. When the owner, agent or manager of a mine intends or proposes by introducing water from the surface, or from any other part of the mine, or from an adjacent mine, to flood any part of the workings of his mine he shall give in writing not less than seven days notice of his intention to commence such operations to the Chief Inspector and to the management of all adjacent mines and such other mines as might be affected by such flooding :

Provided that the Chief Inspector may by order in writing—

- (a) permit such operations to be commenced on any day prior to the expiry of seven days from the receipt of notice ; or
- (b) require that such operations shall not be commenced until after the expiry of such time, not exceeding twenty days, from the receipt of notice as he may specify in this behalf.

75B. If the operations in respect of which notice is given under regulation 75A are not commenced within sixty days from the expiry of the period of notice of seven days therein referred to, the notice shall be deemed to have lapsed and the provisions of that regulation shall apply as if no such notice had been given."

IV. After regulation 78, the following regulation shall be inserted namely. —

" 78A. Whenever 'crush' of pillars or any symptom of impending collapse other than that ordinarily caused by pillar extraction is detected, the owner, agent or manager of the mine shall inform the Chief Inspector forthwith."

V. In regulation 115, the words "or allow a shot to be fired" shall be omitted.

VI. After regulation 115, the following regulation shall be inserted, namely :—

" 115A. In any place in a mine in which the use of a locked safety lamp is for the time being required by or in pursuance of these regulations no shot shall be stemmed or fired by any one who does not hold a sirdar's certificate endorsed for gas testing."

A. G. CLOW,

Joint Secretary to the Government of India.

APPENDIX IV—*contd.*Miscellaneous—*contd.*

Statement No. 6.

NOTIFICATION.

Dated New Delhi, the 25th November 1933.

No. M.-1051.—In exercise of the powers conferred by sub-section (1) of section 46 of the Indian Mines Act, 1923 (IV of 1923), the Governor General in Council is pleased to direct that the following further amendment shall be made in the Schedule to the notification of the Government of India in the Department of Industries and Labour, No. M-665, dated the 16th April 1930, namely :—

In the said Schedule, after entry 9, the following entry shall be inserted, namely :—

“ 9-A. The following mines in the Presidency of Madras, namely :—

Stone quarries in the Mangalgi Sub-division of the Guntur District not exempted from the operation of all the provisions of the Act under entry 1.	}	The provisions contained in section 28.”
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A. G. CLOW,

Joint Secretary to the Government of India.

APPENDIX IV—contd.

Miscellaneous—contd.

Statement No. 7.

NOTIFICATION.

Dated New Delhi, the 20th December 1933.

No. M.-1055 (3).—In exercise of the powers conferred by section 29, of the Indian Mines Act, 1923 (IV of 1923), the Governor General in Council is pleased to direct that the following further amendment, having been previously published as required by sub-section (1) of section 31, of the said Act, shall be made in the Indian Metalliferous Mines Regulations, 1926, namely :—

In sub-regulation (2) of regulation 1 of the said Regulations for the words “ other than a coal mine ” the words “ other than a coal or an oil mine ” shall be substituted.

A. G. CLOW,
Joint Secretary to the Government of India.

APPENDIX IV—*contd.*Miscellaneous—*contd.*

Statement No. 8.

NOTIFICATION.

Dated New Delhi, the 20th December 1933.

No. M.-1055 (4).—In exercise of the powers conferred by sub-section (1) of section 46 of the Indian Mines Act, 1923 (IV of 1923), the Governor General in Council is pleased to direct that the following further amendments shall be made in the Schedule to the notification of the Government of India in the Department of Industries and Labour, No. M-665, dated the 16th April 1930, namely :—
In the said Schedule—

(a) For entry 2, the following entry shall be substituted, namely :—

“ 2. Borings and oil wells in the making or operation of which no person is employed
beneath the superjacent ground All ”

(b) In entry 6 after clause (iv) the following clause shall be inserted, namely :—

“ (v) ‘ Twinza ’ oil wells All ”.

A. G. CLOW,

Joint Secretary to the Government of India.

APPENDIX IV—*contd.*Miscellaneous—*contd.*

Statement No. 9.

NOTIFICATION.

Dated Calcutta, the 22nd December 1933.

No. 7018-Com.—In exercise of the powers conferred by section 30 of the Indian Mines Act, 1923 (IV of 1923), the Governor in Council is pleased to direct that the following amendment shall be made in the rules for coal mines published with Bengal Government notification No. 4788-Com., dated the 29th August 1924, namely :—

Amendment.

In Chapter IV of the said rules, *after* rule 17, *insert* the following, namely :—

“ 17A. When there is a possibility of the stability of occupied buildings on the surface of a mine, within the boundaries of the mineral leasehold, being affected by the extraction or reduction of underground pillars, notice in writing shall be sent to the Chief Inspector by the owner, agent or manager of the mine not less than one month before the commencement of the operations. The notice shall be accompanied by a plan showing the positions of the buildings in relation to the underground workings.”

B. N. GILCHRIST,

Joint Secretary to the Government of Bengal.